Flower Grower

IT'S SPRING! PLANT NOW!

better SOIL better gardens

16 PAGE EXTRA FEATURE FOR ALL HOME OWNERS

SPECIAL ISSUE 35¢ MARCH 1953

To all lovers of BEAUTIFUL HOUSE PLANTS

...something thrillingly

NEW!

An *Unretouched* Actual Color Photograph

FLAME VIOLET (Episcia Coccinea) is truly the "most beautiful house plant in all the world". Grows and looks like an African Violet. In fact, it's a close cousin of the African Violets and by long odds the brightest member of the family!

FLAME VIOLET probably has the most gorgeous leaves of any known house plant. They are broad, very thick and plush-like. And every leaf is deep bronze with veining of emerald green.

NOW! Be one of the first to own the gorgeous, NEW SCARLET FLAME VIOLET

Exciting, Vivid Colors--*Easy to Grow, Too!*

If you think AFRICAN VIOLETS are beautiful –try *FLAME VIOLET*!*

"More beautiful than African Violet"—that's the only way we can describe FLAME VIOLET (Episcia Coccinea). It's new — *a different* house plant whose *bright bold* colors will add a touch of beauty to any room in your home.

EXCITING, VIVID COLORS

The flowers are a brilliant scarlet —a true *flaming red!* In vivid contrast are the rich bronze leaves with their veins of emerald green. And every leaf is broad, very thick and looks like soft, plush velvet.

So beautiful is Flame Violet that even without its flaming red flowers it's a house plant you'll cherish and admire! Your friends will love it!

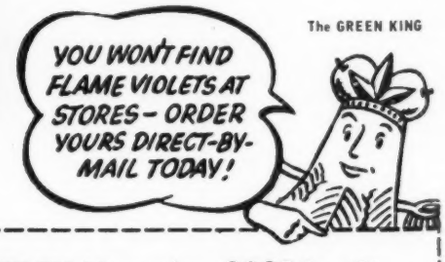
EASY TO GROW, TOO!

Flame Violet is easy to grow. Just give it the same care you give African Violets. Wants plenty of warmth and light *but no direct sunshine.* Complete cultural directions sent with each plant.

Every Welch Flame Violet is shipped fresh and vigorous out of 2¼" pots . . . direct-by-mail from our producing greenhouses. But don't delay sending in your order because supply is limited and orders will be filled in rotation as weather permits.

You cannot buy Flame Violet from local dealers! Use the handy coupon below and order *your* Flame Violet *today!* Satisfaction guaranteed or your money cheerfully refunded.

The GREEN KING



MONEY BACK GUARANTEE

We consider Flame Violet a real discovery and are happy to offer it to you. Order today; if you don't agree that Flame Violet is everything we say it is—return the plant and we'll refund your money!

**The GREEN QUEEN and GREEN KING are registered symbols of guaranteed, first-quality nursery stock and reputable dealing for over 71 years. *The name FLAME VIOLET is a registered trade-mark name owned by Welch Nurseries, Inc.

© 1953

The WELCH Nurseries, 2031 Ivy St.

Over 71 years at SHENANDOAH, IOWA

Please send me, postpaid, with cultural instructions, the offer I've checked—*guaranteed.* I'm enclosing ☐ check, ☐ money order. Also send free a Welch 1953 Catalog.

No. 2N291M ☐ **1 Flame Violet, $1.98** ☐ **3 Flame Violets, $5.40**

Name_____

St. or Rt._____

P. O._____ State_____

A GREAT ACHIEVEMENT IN BOTANICAL HISTORY!

GIANT

Double Camellia-Flowered

BEGONIAS

World's most spectacular flower
Measures up to 8 inches across

BLOOMS ALL SUMMER LONG

Positively breath-taking are these new double Camellia-flowered hybrids. Their spectacular blooms, from early July until late fall, measure up to 8 inches across. More colorful than ever, Stern's now offers these exquisite flowers in a wide range of brilliant colors. Their lovely shape is a masterpiece of symmetry. Grow them in shade—where clear bright colors are most needed. A most effective cut flower when floated in a shallow bowl like a Water Lily—surrounded by its own leaves.

GUARANTEED TO BLOOM IN 15 WEEKS

A Continuous Display from July until frost. For shady locations—in garden, porch or window box

From early summer until late fall you'll have these exquisite flowers of exceptional beauty. Huge blossoms of iridescent red, pink, white, rose, yellow and intermediate shades. You've never seen such rich and glowing colors—such exquisite shape of flower! Don't wait 'til it's too late. Plant this spring!

These remarkable Stern's BEGONIAS will thrive almost without direct sunlight—even where other flowers cannot live. They'll brighten dark corners of your garden with spectacular color. They are wonderful as potted plants on shady cool porches that hardly get any sun. In window boxes on the shaded side of your house, their continuous display of huge blossoms will glorify your home. Give them plenty of water and they will reward you with a color display of amazing brilliance right through the hottest summer until actual freezing weather. Don't miss this amazing garden thrill.

Easy to grow! Require little care!

Easy to grow in a shady location. They cannot stand full sun. For longest possible blooming season, we recommend that you start Begonias indoors in pots or window boxes in March. Set outdoors after all danger of frost has passed. They bloom in clusters of three, one large male flower in the center and two smaller female flowers on either side. Remove these side buds as soon as they appear. They are of inferior character and inhibit the full development of the central flower. This disbudding will make an amazing difference in the size and beauty of the flower.

Keep soil moist—keep soil at a high degree of fertility.

Giant, tuberous-rooted Begonias—Finest grown!

Groups include these gorgeous colors:

RED	SALMON
PINK	YELLOW
ORANGE	WHITE

ORDER NOW for immediate delivery
Send check or money order

STERN'S NURSERIES

DEPT. G, GENEVA, N. Y.

© 1953—Stern's Nurseries, Inc.

USE ORDER FORM—MAIL TODAY!

STERN'S NURSERIES Dept. G, Geneva, N. Y.

Yes, I want the world's most beautiful flowers. Send Giant Camellia-Flowered Begonias that are guaranteed to bloom in 15 weeks or money back.

- ☐ 6 Bulbs (one of each color) $2.00
- ☐ 12 Bulbs (two of each color) $3.50
- ☐ 24 Bulbs (four of each color) $6.00
- ☐ 54 Bulbs (nine of each color) $11.50
- ☐ 96 Bulbs (sixteen of each color) $19.50

ALL PRICES POSTPAID

AMOUNT ENCLOSED
$_____

NAME_____

ADDRESS_____

TOWN_____ STATE_____

STASSEN introduces ***Your Dutch Uncle*** who will give straight-from-the-shoulder advice in this column each month.

Your Dutch Uncle suggests the unusual and charming

CLIMBING LILY

"More than just a novelty, I predict that this rare climbing Gloriosa will become very popular in American gardens and pique the fancy of every cut flower enthusiast. A goodly shipment of these tubers is arriving now from the deep tropics.

"There are tendrils at the end of each leaf to provide support for the stems as the plant climbs to a height of about four feet. In summer and fall, they produce a dozen or more flowers in succession. The reflexing petals are crimson, and yellow. When cut, they will suggest exciting flower arrangements, their wiry stems adapt themselves as corsages as breathtaking as any orchid (cut off Stamin).

"Of the few existing Gloriosa, this Rothschildiana variety is the best. Can be started now in greenhouse and outdoors when ground is warm again. It thrives in tropical splendor in a dry and sunny location. When you dig them up in fall for winter storage you'll likely find a V shaped tuber which can be divided into two."

Large, heavy tuber **$1** each postpaid

3 for **$2.75** 10 for **$8.50**

Your Dutch Uncle

has this to say about GLADS:

"Glads are not all alike, gardeners...as many will testify who get stuck with little bulbets of no particular value. Glad corms should be high-crowned 1¾" across. The best varieties cost little more than less satisfactory unknown mixtures, and give so much more value.

STASSEN HOLLAND IMPORTED GLADS

are Dutch and U.S. Government inspected. Full value, fresh kept stock, is an honored practice at Stassen. You get, here at Stassen, so much more for your money, so why take needless chances? Buy enough to plant every two weeks for constant bloom throughout summer and fall.

"Look over the varieties in Stassen Spring Catalog, but if the following colors appeal to you I recommend these varieties."

	Per 10
CHERBOURG *ruby purple*	$ .85
DR. FLEMING *stunning rosy-pink*	.85
PRINCESS BEATRIX *scarlet-orange*	1.00
HAN VAN MEEGEREN *deep canary yellow*	.90
HAWAII *finest smoky color*	.90
GENERAL EISENHOWER *begonia-rose*	.85

"UNCLE'S COLLECTION" 5 each of above 6 varieties **30 for $2.40**

all offers postpaid.

Send for New Catalog of STASSEN BULBS

STASSEN

FLORAL GARDENS, INC.

DEPT. 17 ROSLYN HEIGHTS, N. Y.

Flower Grower

March 1953 **Vol. 40, No. 3**

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Ben Arthur Davis has long been helping Southerners to better gardens. In addition to his 20 years' work as garden editor of Holland's Magazine, he has written two books, 12 booklets, a syndicated newspaper column and numerous magazine articles on horticultural subjects. He travels extensively as flower show judge and lecturer, but still finds time for experimental work at Hope Haven, his home in Meridian, Mississippi, and for state and local garden club activities. On page 59 Mr. Davis tells FLOWER GROWER readers how to grow cascade mums.

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Circulation and Production Offices: 99 N. Broadway, Albany 1, N. Y.
Editorial and Advertising Offices: 2049 Grand Central Terminal, New York 17, N. Y.

Advertising Representatives
Midwest: Cole & Mason, 605 North Michigan Avenue, Chicago 11, Illinois
West Coast: Conaway & Klaner { 1127 Wilshire Blvd., Los Angeles 17, Calif. / 244 California St., San Francisco 4, Calif. / Terminal Sales Building, Portland 5, Oregon

Address all communications about Subscriptions to Circulation Manager, Flower Grower, Albany 1, N. Y. When changing your address report direct to Flower Grower, Albany 1, New York, rather than through your local post office, giving both your old and new address, and allow four to five weeks for the first copy to reach you at the new address.

Published monthly by Williams Press, Inc., 99-129 North Broadway, Albany, N. Y. Entered as second class matter at the Post Office at Albany, N. Y., September 21, 1932 under act of March 3, 1879. Subscription price: U. S., Canada, Mexico, Central and South America, $3.00 per year, 2 years, $5.00. Other foreign countries $4.00 per year. (Copyright 1953 by Williams Press, Inc.) Printed in U. S. A. POSTMASTER: If addressee has moved and new address is known notify Albany Office on Form 3578-P, postage for which is guaranteed.

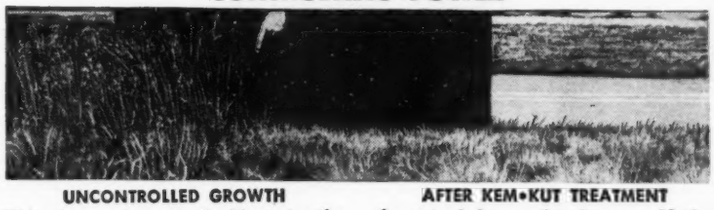
Now! Trim Your Lawn Just Once a Year!

AMAZING NEW KEM•KUT

'Trims' Grass Edges Chemically

NO MORE BLISTERS—NO BACKACHES—NO LONG KNEELING—JUST SPRINKLE ON!

HERE IS PICTURE PROOF OF KEM•KUT'S MIRACLE CONTROLLING POWER



UNCONTROLLED GROWTH — This picture dramatically illustrates the astonishing effectiveness of KEM KUT'S retarding power. The left portion of the picture above shows what actually happens when grass upkeep is not maintained. You can actually see

AFTER KEM•KUT TREATMENT — the retarded growth of grass. Notice how KEM•KUT treated grass at right is much neater, greener, richer and more luxuriant than the untreated grass. Here is visual proof of KEM•KUT'S growth retarding qualities!

Now you can have a beautiful lawn trim without hard work! Agricultural Chemical Department of U. S. Rubber Company develops amazing new compound that slows down the rapid growth of grass!

Trimming Slashed from 19 to Just 1 Cutting a Year!

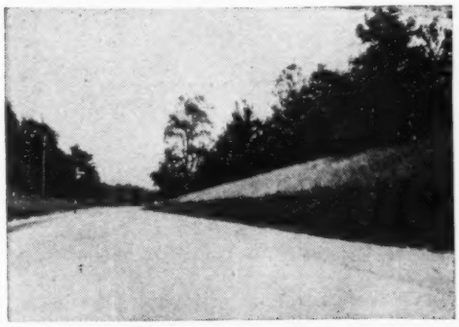
The name of this revolutionary discovery is KEM•KUT, an amazing chemical hormone that safely inhibits the growth of grass wherever it is applied. When you spinkle KEM•KUT on the edges of your lawn that are so hard to keep clipped . . . so difficult to cut, it immediately begins its retarding action on growing grass. Cell growth is inhibited. Grass becomes partially dormant. Now you can have a perfect edge of grass near driveways, flower plots . . . shrubs and trees were it is literally impossible to mow. No longer do you have to stoop and bend for hours with cumbersome trimming shears that tire and blister your hands. No longer do you have to spend hours on your knees every week trimming what seems to be miles of lawn margins to keep your place looking neat and trim. Just a sprinkling of KEM•KUT on the grass edges of your property and your trimming problems are *slashed from 19 cuttings to just 1 cutting a year!* Think what this means to you in terms of time and money saved! Think of all the physical exertion KEM•KUT will save you! Now you will have more time to enjoy the work-free neatness that will make your property the showplace of your neighborhood!

Use KEM•KUT now and reduce your trimming problems to a single cutting a year. Keep down rapidly growing grass around sidewalks, driveways, flower plots, garden paths, bushes and trees. Sprinkle or spray KEM•KUT now . . . trim just once a year. Use KEM•KUT to keep acres of uncultivated grass from going to seed. Spray KEM•KUT in these areas to keep down rampant grass growth. Try KEM•KUT now . . . see for yourself how much time and money KEM•KUT will save you. Get these amazing results today without expensive trimming equipment, wihout sharp instruments, without long kneeling, backaches and blisters – just by sprinkling KEM•KUT with nothing but a watering can.

USED BY STATE HIGHWAY COMM., STATE OF CONNECTICUT

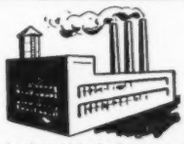
The State of Connecticut Highway Commission has used the active ingredients of KEM•KUT along its highways to keep down the cost of maintenance, according to published reports. See the tremendous difference between treated and untreated turf on either side of this state highway.

The 20 foot strips on the roadsides were chemically treated with the active ingredient of KEM•KUT to inhibit grass. These strips are a rich, thick green – lovely to look at. This method of "trimming" can save this state thousands of dollars every year.



HAVE A "RAZOR EDGE" TRIM LIKE THIS ALL SEASON BY TRIMMING ONLY ONCE A YEAR!

Every property owner who has a driveway, a path or flower garden near his lawn knows how long it takes to get and keep a keen, trim-looking edge. It's the kind of job you keep putting off because it takes a lot of bending at the expense of an aching back, and sore, blistered fingers from trimming shears. KEM KUT makes this a simple "once a year" job . . . keeps the grass from growing onto the driveway and into flower beds. Now you don't have to spend money for concrete, wood or metal edging because, for the cost of pennies, KEM•KUT keeps lawn margins "cut".



NAUGATUCK CHEMICAL DIV., U. S. RUBBER CO., DEVELOPS KEM•KUT AFTER YEARS OF EXTENSIVE RESEARCH

Working steadily with agricultural chemical problems for many years, Naugatuck Chemical tackled the tough problem of grass control with growth inhibiting chemicals. Working with herbicides, they finally developed an effective hormone that slows down the growing rate of most grasses. This amazing compound, called KEM•KUT is the only effective grass regulant available today.

HERE'S WHAT HAPPENS TO GRASS WHEN KEM•KUT IS APPLIED!

As soon as KEM•KUT is sprinkled on the grass, the hormone it contains chemically changes the growth habit of the grass. The blades of grass cannot develop additional cells for higher growth. *KEM•KUT treated grass becomes greener and fuller* because KEM•KUT'S hormone actually slows down the growing rate of grasses . . . keeps it from growing taller and eliminates the frequent clipping and trimming necessary for good appearance! Just sprinkle KEM•KUT along lawn margins.

NO RISK—MONEY BACK GUARANTEE

Every sale of KEM•KUT is unconditionally guaranteed to do everything claimed for it in this advertisement or your money is refunded at once.

KEM•KUT IS SCARCE!

Because of the tremendous demand for KEM KUT by commercial users for highways, estates, hotel grounds, golf courses, sports fields, cemeteries, etc., the supply of KEM•KUT for home use is necessarily limited. Enough KEM•KUT has been set aside to take care of requests from this ad. However, when present supplies of KEM•KUT are gone, there will be some delay in filling late orders. Be safe – Be sure – Order Now.

AT YOUR DEALERS
If He Cannot Supply You, Order Direct

KEM•KUT, Dept. FG-2
Harrison, New Jersey

1 Oz. $1.00
Treats 500 Feet 6 Inches Wide

2½ Oz. $2.00
Treats 1250 Feet 6 Inches Wide

Gentlemen: Enclosed find $.....for..... Oz(s) KEM•KUT, the amazing new grass growth inhibitor. If I am not thoroughly satisfied with the results I get . . . if KEM•KUT does not do everything claimed for it in this ad, I will return empty package for full refund.

Name.....

Address.....

City.....*Zone*.....*State*.....

STERN'S PRESENTS **THE SPECTACLE-OF-THE-YEAR!**

Rare, Double Flowering

ROSE of SHARON TREE

(HIBISCUS SYRIACUS)

Not a shrub!

Not a bush!

Guaranteed to bloom in 15 weeks

Most exquisite ornamental flowering tree! Now Stern's brings you the lovely ROSE of SHARON in exciting new beauty you've never seen before. Friends will marvel at it! This entire tree covered with hundreds of huge rose-like flowers is *an unforgettable sight!* Remember these are not the ordinary shrub althea—these are magnificent *trees,* one of the loveliest of all flowering trees. Use as an ornamental shade tree along walks or near your house; admirers will come to your home just to see their magnificent beauty.

GORGEOUS FLOWERS IN 15 WEEKS—*Guaranteed* if you plant now
These big trees have already set flower-buds that will burst into glorious bloom *this* summer. With every succeeding year you'll enjoy these ROSE of SHARON trees more than any other tree in your garden.

***LOOK!* Huge Rose-like flowers up to 4 inches across!**

These are the famous ROSE of SHARON at their glorious best—now the most spectacular of all summer and fall flowering trees. Each bloom is like a perfect rose—only bigger. Its many ruffled petals, its breath-taking coloring are yours continuously from mid-summer until late fall. Require absolutely no special attention. Just plant them and enjoy them. Stern's ROSE of SHARON TREES live a lifetime—a splendid investment for every home-owner.

Makes your home a "SHOW PLACE"

These stately ROSE of SHARON trees will add considerable value to your home—plus exquisite beauty. You will delight in their breath-taking abundance of color and blossoms, their cool summer shade. Grows 15 feet high . . . *blooms continuously from July until October.*

Absolute hardy. These amazing trees thrive anywhere, in any soil. They require almost no care, yet they become more beautiful each year. LAST A LIFETIME. Require NO winter protection.

UNCONDITIONALLY GUARANTEED

Stern's guarantees lifetime satisfaction. If at *any time* you are not completely satisfied, your money will be refunded promptly. You need not return the plants for refund.

Breath-taking colors now available in Stern's ROSE of SHARON trees

RADIANT RED—Hundreds of bright double red flowers, so profuse they will cause some of the branches to droop gracefully.

SHOCKING PINK—Large flowers with many delicately curved petals of a rich pink color. An abundant bloomer.

WHITE BANNER—Pure white with a spot of red in the center. A double-full blossom. Extremely large and very abundant.

STERN'S NURSERIES

Dept. G • Geneva, N. Y.

BIG TREES guaranteed hardy in coldest sections

Each $5.00 3 for $12.00 Shipped Express Collect

Send check or money order. **Our supply is limited.**

Order NOW for delivery at proper Spring planting time.

USE COUPON • MAIL EARLY

STERN'S NURSERIES, Dept. G, Geneva, N. Y.

Send me at proper planting time_____ Stern's ROSE of SHARON trees. Each tree is guaranteed to bloom within 15 weeks—or my money back.

Check Variety

☐ Radiant RED

☐ Shocking PINK

☐ WHITE Banner

Check Quantity

☐ One—$5.00

☐ 3 for $12.00

Shipped Express Collect

ENCLOSED IS $_____

NAME_____

ADDRESS_____

TOWN_____ STATE_____

© 1953 Stern's Nurseries, Inc.

STERN'S NURSERIES PROUDLY PRESENTS
A NEW GARDEN MASTERPIECE

MAN-HIGH EYE-LEVEL GLADIOLUS

Imported tree-size specimens 5 to 6 FEET TALL

Stern's brings you another rare garden wonder. Gigantic GLADS—giant queens of floral beauty, Truly the most magnificent ever grown!

- • • • Imagine towering spikes taller than the average man—with a flowering head more than a yard long . . .
- • • • imagine 22 or more huge flowers on a single stem—each individual floret the size of a saucer, measuring 6 inches in diameter . . . each flower the size of a giant Amaryllis . . .
- • • • imagine a flag-pole spike with eight or more colossal flowers open at the same time—with florets so arranged that the spike is 8 to 10 inches wide—like a solid wall of brilliant color . . .
- • • • imagine enjoying weeks of colorful blooms as each bud bursts into flowering glory.

Don't miss this garden thrill—get these new Stern's Skyscraper varieties for a "flower show" garden this summer.

These rare Gladiolus originally sold for as much as $50.00 for a single bulb! Now Stern's brings you these "best-of-the-show" beauties at a price every gardener can afford. We predict that these amazing horticultural specimens will some day be featured as cut flowers by America's finest florists at up to $12 a dozen!

Guaranteed to bloom in 90 days or less—or money back. (No need to return plants.)

So easy to grow, even the beginner can win prizes at flower shows. In your garden they are an outstanding spectacle that demands attention. In a floral arrangement, they are a "living picture" of grace and color that cannot be equalled by any other flower. Simply plant these Stern's giants deeper than ordinary "Glads"—about 4-5 inches deep. This is necessary because their towering height requires a firm foundation. Plant in any kind of soil with good drainage. Give them maximum sunshine (all day long if possible). Water frequently. For a continuous display of exhibition Gladiolus, plant bulbs at intervals of two weeks. Plant until July 1st. Enjoy a succession of exquisite blooms from July until late Fall.

RUSH ORDER—our supply of these rare bulbs is extremely limited
RESERVE YOUR SELECTION NOW. We ship Glads just before planting time.

STERN'S NURSERIES

DEPT. G • GENEVA, N. Y.

© 1953 Stern's Nurseries, Inc.

GROWS 5 INCHES IN A SINGLE DAY!

A Goliath of vitality! You've never seen such vigorous growth. On damp, cool summer days you can almost see them growing. Small quantities of plant food applied regularly, plus plenty of water and sun, is all you need for sensational prize-winning Glads.

5 SKYSCRAPER VARIETIES for MAN-HIGH, EYE-LEVEL BEAUTY

1—**CREAMY WHITE**—A magnificent specimen, produces a huge spike covered with flowers. Sensational.
2—**PINK AND ROSE**—Rare prize-winners! Tremendous flowers opening extremely wide. Very tall and graceful.
3—**YELLOW AND ORANGE**—A massive display of dazzling sunrise colors. A Flower Show champion.
4—**SCARLET**—King Size flowers. Rich deep color with a velvety glow. One of the largest—easily reaches 6 feet.
5—**PURPLE AND LAVENDER**—New, most unusual color. An amazing flower—tall and broad. Exquisite.

Stern's finest quality—officially rated No. 1 size
Every Stern's bulb treated INSECT RESISTANT
Every bulb guaranteed to bloom in 90 days or less

3 of each listed above—	15 bulbs....	$ 3.25	ALL PRICES POSTPAID
5 of each listed above—	25 bulbs....	$ 5.00	
10 of each listed above—	50 bulbs....	$ 9.50	
20 of each listed above—	100 bulbs....	$18.00	

Send check or money order.

STERN'S NURSERIES, INC., Dept. G, Geneva, N. Y.
I want Stern's MAN-HIGH GLADIOLUS that grow 5 to 6 feet tall. Every bulb guaranteed to bloom in 90 days or less.

CHECK QUANTITY
☐ 3 of each 15 BULBS $3.25
☐ 5 of each 25 BULBS $5.00
☐ 10 of each 50 BULBS $9.50
☐ 20 of each 100 BULBS $18.00
POSTPAID

Enclosed is $.....
NAME.....
ADDRESS.....
TOWN..... STATE.....

Reports on Soil Conditioners

Readers were invited in the September Weathervane to report on their experiences with soil conditioners. This is a cross section of the reports.

Sold on Krilium

Dear Editor:

I am absolutely sold on Krilium. I bought a 5-pound box last July to use on soil that had had bluegrass on it for nearly 30 years. It was good black soil, but the top 6 inches were packed and airless. I followed Monsanto's directions as to amount, but I used a spading fork first and then my hands, breaking it up fine to a depth of 1 foot before adding the Krilium. Then, after adding compost and bonemeal, I planted iris. The results were magic! In six weeks, the iris were firm and well established, leafing out nicely with big blades instead of spindly ones. Moreover, three minutes' work with a fork on the surface inch of soil after beating rains leaves the Krilium bed porous and fluffy. However, I do feel that part of the reason for the unusual success of my iris is the full sunlight they received.

I've found Krilium much harder to use on some claylike beds I have near the foundation of the house—partly because there's more moisture there. These beds used to hold puddles of water after a rain. Not now! I watched eagerly and saw it all absorbed after a heavy rain.

Krilium is the only new aid for gardeners in my experience that has come up to all expectations, and I try most of them. I plan to use it on every new bed. —HELEN BRADLEY, Kansas City, Mo.

Fluffium Truly Helped

Dear Editor:

Since I'm strictly an amateur gardener, I'm willing to try anything once even though it may be something new on the market. So the end of last May I applied Fluffium to my garden "soil," which until then was hard-packed clay. Formerly I'd had to cultivate almost daily around the plants. I found Fluffium truly helped my soil. It not only made it more loamy-like but improved its color, changing it from an orange brown to a good deep brown. Even after the Fluffium treatment, the soil would still crack during a long, dry spell, but I guess that's to be expected. I don't know.

I had just about given up on my tomato seedlings, which I put in rather late last year, for right after I planted them, we got about four days of rain. The poor seedlings turned purple and yellow, and I was ready to pull them out. Instead I tried Fluffium, also applying some of the new fertilizer Stern's Miracle-Gro. The combination did the trick. Although I didn't get a large yield of tomatoes, those I did get were excellent.—MRS. DORIS P. THANESON, Bethesda, Md.

Doubtful Results

Dear Editor:

This summer I tried a little Fluffium on a group of giant glads, but I doubt if it did any good. Too many of the stems and flower spikes were distorted to suit me, although the flowers were normal. I don't know if Fluffium caused the stem distortion or not. My soil is not in need of any soil loosener, and I tried this product as an experiment only.—DAVID M. BAILIFF, Toledo, Ohio

Garden Surpassed Anything

Dear Editor:

We used Fluffium as soon as it was on the market. The flower beds had already been spaded and planted, and the soil, which had been used previously, was an "in-between" soil, or probably more toward clay. Using a sprinkling can, we applied 1 pint of Fluffium diluted in 3 gallons of water to 250 square feet of bed, soaking it down afterward. Within 24 hours, the soil was friable and in good tilth. Three weeks later we repeated this application.

Because of the extreme drought here last summer, we were forced to resort to watering. We also used a little foliage fertilization. Our garden of zinnias, marigolds, carnations, roses, celosias, asters and iris certainly surpassed anything in the neighborhood.

After the treatment, the garden was hand-weeded, for it was an easy matter to pull up weeds (roots and all), but it was not cultivated and no hard crust formed at any time. I am certainly enthusiastic about soil conditioners.—MRS. Z. J. WILKINSON, Nashville, Tenn.

Trying Six Brands

Dear Editor:

When I planned my garden, I didn't know the entire surface of it had no topsoil at all but was nothing but gumbo clay all the way down. From the time I first laid out the garden in 1941, we have averaged 15 bales of peatmoss each year, as well as yards of sand, manure and compost. Each spring it's the same old battle to try to get the garden in shape for annuals, etc. So when Monsanto first released articles on Krilium to the press, I decided to investigate. I wrote to Monsanto long before they ever put it on the market, and they were good enough to fill my order early last spring. As soon as I received the conditioner, I got to work on a spot I had picked out for bulbs. It was 2 feet wide and 20 feet long (or 40 square feet), just the size area a 5-pound can is supposed to cover when soil is to be worked up to 5 inches deep. First I dug the soil to a depth of 8 inches, breaking it up as fine as possible. Then I applied 2½ pounds over the surface and spaded it in. Then I put on the other 2½ pounds, raking it in. For the next two weeks, I left the area alone. During this time there was no rainfall, so about three times a week I soaked the ground down to see how it would take up the water and also to see whether the ground would crack open when dried out by the sun. The bed turned out in wonderful shape, and this spring should tell if it is an entire success.

I have five other soil conditioners on hand to try out. Last year I applied Fluffium to 500 square feet of lawn, part of which is a bank. As I did not get the results hoped for, I am going to apply it to another 500 square feet.

My reason for trying out liquid conditioners is that it's impossible to use the powder form around camellias. I have about 150 of these plants in my garden. If you dig too much around them, you destroy too many roots. This is also true of peonies and bearded and Japanese iris. —FREDERICK H. BRONNER, Portland, Ore.

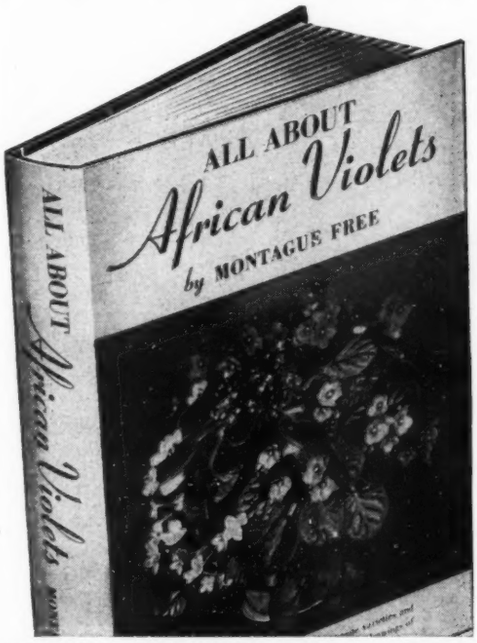
Not Worth Time, Money or Effort

Dear Editor:

I used Krilium as suggested on the package in two different areas on our property and worked it into the soil to a depth of about 3 inches. The first was an established perennial border, which I divided the long way, treating only one half. The border contains roses, lavender, peonies, funkia, iris and seedling shrubs. The soil was already in quite good tilth. I saw very little difference in the condition of the soil after the application and none in the health of the shrubs and plants. But I did note, to my consternation, that no weeds grew in the Krilium-

■ **Soil conditioners are discussed in the "Better SOIL—Better Garden" section, which begins on page 61.**

EXAMINE FREE! ***The Most Complete, Most Practical Handbook on African Violets Ever Published . . .***



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☐ White, ☐ Pink, ☐ Orange, ☐ Yellow, ☐ Scarlet.

CHRISTATA ERECTA — "Holy Cross" Begonia.
☐ Yellow, ☐ Pink, ☐ Orange, ☐ White, ☐ Copper, ☐ Dark red.

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GARDEN GLOVES

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treated half of the bed, while the other half had its usual growth.

I also treated the middle section of a long, ivy-covered bank. The soil here was very poor. It was necessary to dig the holes for the ivy with a pick. Early last spring I worked the soil and mulched it lightly with peat. Later I applied Krilium. I noted a distinct yellowing of the ivy leaves in the area where Krilium was applied. And, here again, I saw no weeds in the treated part.

Fluffium I used on a north-facing bank on which I was trying to establish vinca. The soil is extremely poor in spite of much working and fertilizing. I could detect no difference in the treated area at all. Weeds flourished and the vinca limped along as formerly. There was no perceptible change in the texture of the soil.

I found Fluffium harder to mix but much easier to apply than Krilium.

As you can see, I found neither of the above-named soil conditioners worth the time, money or effort.—MRS. MORGAN RULON, Wayne, Pa.

Performed Near-Miracle

Dear Editor:

I have tried Loamium in my garden and find it excellent. Our house is built where there previously had been a 30-foot cliff; so, you see, we're down to practically all clay soil, very hard and unworkable. I feel that Loamium has performed a near-miracle. Where I applied it last June, the soil may still be easily worked and appears to hold moisture more readily. Before using Loamium, the soil was caked on top, causing rain to run off. Incidentally, I believe Loamium is most effective on areas where the soil has been loosened before it is applied; then, too, you don't waste it by pouring it on the leaves and having it evaporate.—FREDNA F. TREWITT, Washington, D. C.

Immediate Effect Spectacular

Dear Editor:

In the three years since we acquired our one-acre farm, the heaps of peatmoss and compost dug into every area of it devoted to plantings have had only a slight restraining effect on the tendency of the ground to form sun-dried brick, impervious to water and hard enough to break the tines of a spading fork. Therefore, when I heard reports on the results to be obtained from Krilium—and Fluffium—they sounded truly mouth-watering to me. And try them both I did.

Krilium I used with measured amounts of ordinary soil for planting a few shrubs and for seed flats and potted seedlings. It is easy to mix into the soil and has an immediate effect on the feel and texture of it. Germination of seeds and root development of seedlings have been tremendously improved, presumably due to Krilium. Indeed, we have had much

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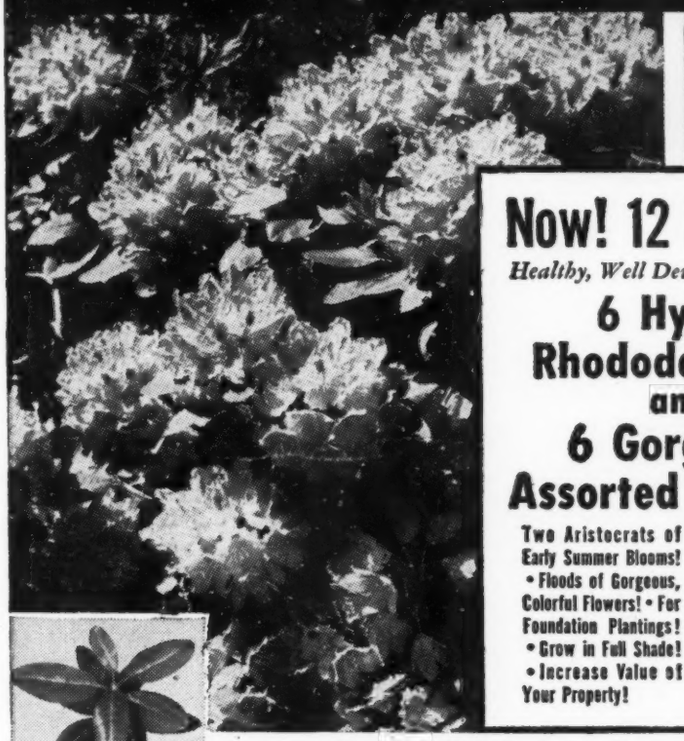

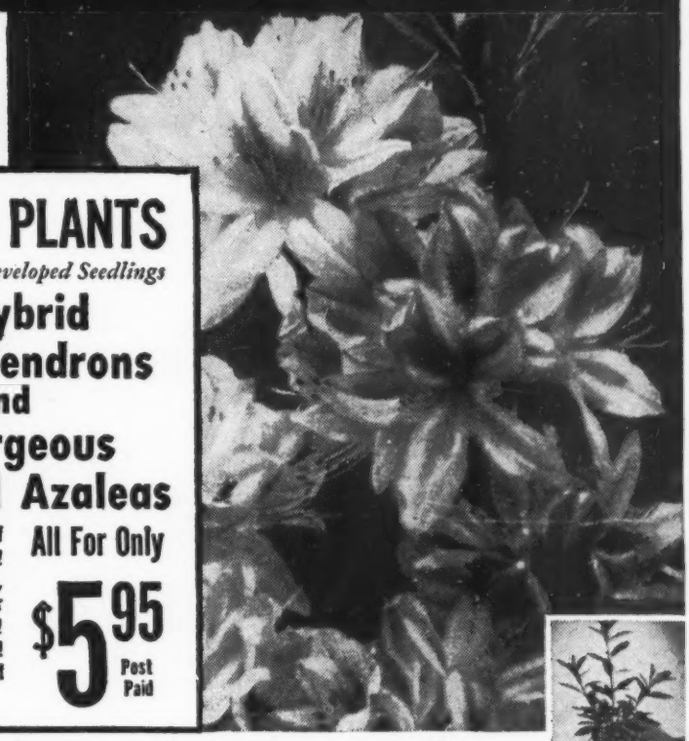

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True Hybrid Rhododendron and Azalea Seedlings Worth $75 to $100 in 3 to 5 Years—Now $5.95

Last year we had to say, "Sorry, no more left" to thousands. This year, again, we can't guarantee to fill all orders *unless mailed promptly*. Why the tremendous demand? Well, who ever heard of getting such choice Rhododendrons and Azaleas for less than 50c apiece. RHODODENDRONS are true HYBRIDS — blue-blooded aristocrats, not ordinary seedlings. Why, they'll multiply in value ten to twenty times over. You might even get a rare "collector's specimen" from these fine hybrids. You'll increase the value of your property, too, with these eye-filling beauties. They create the richest of home settings as they grow into bushy luxuriance —freshly green the year 'round, a riot of color in June, with giant flowers ranging from deep crimson through delicate pinks to dazzling white. Healthy, husky, well-rooted seedlings, 5 to 8 inches high with 8 to 10 leaves each.

This special combination offer of Rhododendrons and Azaleas will turn your garden into a fairyland of jewel-bright color! Millions of May Azalea blossoms set the landscape ablaze! Mass them for bold blocks of color or work them as "eye-catchers" in evergreen borders and foundation plantings. Huge clusters of vivid azaleas accent formal plantings, lend bright charm to casual groupings. These hardy shrubs thrive in northern gardens, in shaded areas, in acid soil. Healthy, well-rooted hybrid seedlings come in 2" bands, ready to put in ground. On this offer you get 2 each of the following: *Mollis*, pale yellow to deep flaming red; *Kaempferi*, salmon to fiery red, shade-loving; *Schlippenbachi*, fragrant, lavender-pink giant flowers.

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better results with Krilium-treated soil than we ever had with other propagating mediums such as vermiculite. The treated soil holds moisture well and the surface does not crust; then, too, with soil one doesn't need to fertilize or to prick out the tiny seedlings.

My first, but by no means last, gallon of Fluffium was sprinkled over a number of projects, and the immediate effect was spectacular. The long-term results remain to be judged.

Until last summer, a narrow flower border of subsoil clay parallel to a driveway retaining wall had resisted all efforts at improvement. Ashes, cinders, compost and peat had helped only a little. So, after breaking up the surface, I sprinkled a generous amount of diluted Fluffium evenly over the bed and scratched it in. Now the earth has a fine consistent texture, and at any time, after days of rain or sun, you can plunge your hand its full depth into soil which once would have defied a pickaxe.

Other beds, originally in better shape but with a particular tendency to surface erosion in heavy rains, have also responded favorably to Fluffium. I used it, too, on small, badly compacted lawn areas. In fact, the only deterrent to wholesale application is its equally spectacular effect on the budget. I've applied every precious drop with a sprinkling can, a rather slow process. It would be easier to spray it on, reducing it by means of some gadget. Though not unpleasant to work with, it is the slimiest, slipperiest, stickiest stuff I have ever mixed up. Pails and sprinkling cans are relatively easy to rinse out, but not the inside of a hose.

It's impossible to state with certainty what effect a conditioner has had on plants. Only scientifically controlled experiments can determine that. But I can say that none of my plants growing in conditioned soil has shown the slightest adverse effect, and since a well-aerated soil is conducive to good plant growth, at least part of my new success can be attributed to this cause. I shall, of course, continue to use organic materials, but there is, in my opinion, definite value in the synthetic as well. I must order another can of Fluffium today!—SARA ELIZABETH FREEMAN, Baltimore, Md.

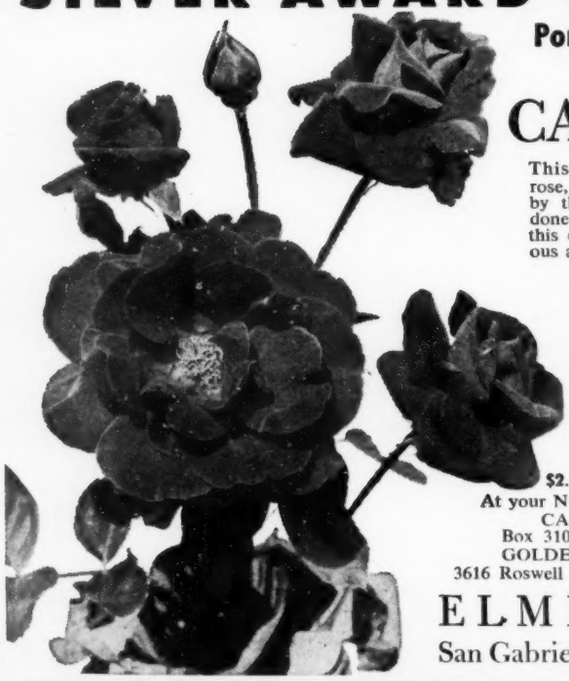
Scientific Reports

• Scientific reports on soil conditioners will appear in the April FLOWER GROWER.

SILVER AWARD WINNER

Portland International Test Garden

CARROUSEL



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Wedgewood Glad

Dear Editor:

On pages 84 and 85 of the January FLOWER GROWER you have the gladiolus Wedgwood confused with the variety Wedgewood. The photo on page 84 is

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25 foot length, covers 25 ft. by 25 ft., a rectangular area of approximately 625 sq. ft.
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50 foot length, covers 50 ft. by 20 ft., a rectangular area of approximately 1,000 sq. ft.
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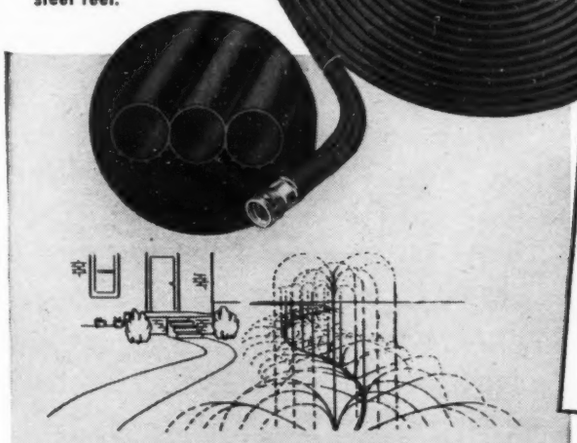

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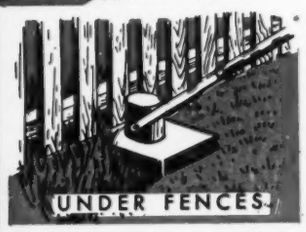

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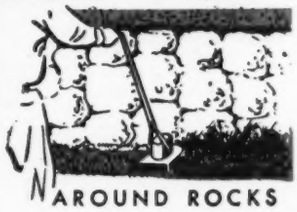

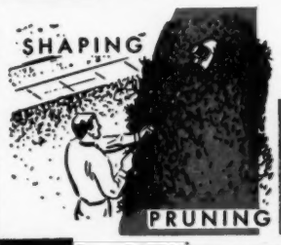

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Carl Fisher's Wedgwood, a lavender, not the deep violet Wedgewood mentioned on page 85 which was originated by K&M. —CDR. M. C. OSBORNE, Washington, D. C.

Dear Editor:

I read with interest the Gladiolus Symposium in the January FLOWER GROWER. However, you list Wedgewood (K&M) 478 among the 1952 introductions and show a picture of C. Fisher's Wedgwood 366. Now I'll have to attend all the 1953 shows to see what the K&M Wedgewood looks like. But I'll forgive you.—NORMAN WEAST, Buffalo, N. Y.

[We sincerely regret the error. If we can obtain a photograph of Wedgewood (K&M) we will let you see what it looks like before you attend the 1953 shows.—ED.]

Primula Germination

Dear Editor:

On page 60 of the January FLOWER GROWER under "Guide to Perennial Seed Germination," you mentioned that primula seed takes "to three years" to germinate. We feel that this statement is misleading as applied to the many varieties of garden primulas which germinate in ten days to three weeks, depending on the locality, the season of the year and quality of seed. We call this matter to your attention in the belief that you do not want to publish any statement which would materially discourage the growing of primulas from seed.—HERBERT F. and MARGUERITE R. CLARKE, THE CLARKES, Clakamas, Ore.

Dear Editor:

We, the undersigned, ask you to print a qualification of the statement "Primula —68° to 3 yrs." occurring on page 60 of the January issue of FLOWER GROWER, under the heading "Guide to Perennial Seed Germination."

The unsympathetic and misleading statement is technically true, of course, —a few rare varieties do have delayed germination—but the great majority of garden types germinate quickly and easily in less than three weeks.

We feel sure you will be as eager as we are to correct this derogatory and misleading information about our favorite subject.—MARY ZACK, President, MRS. EARL A. MARSHALL, Secretary-Treasurer, SUSAN WORTHINGTON, Editor, *American Primrose Society*, Portland, Ore.

A Hot Tip on Roses

• Cut roses will benefit from a warm bath if they droop a bit, according to a suggestion from Roses Incorporated. You'll be amazed at the way they perk up. Don't scald the flower, of course. Just place the stems in a deep vase or pail of tepid water, and, cutting slantwise, remove an inch of the stem ends. After an hour or so, the blossoms will be firm and erect.

SPAYLESS TOMATO

A new tomato named PERON from Argentina having the most extraordinary quality, it seems out of this world. Large ripe fruits have a slip-skin, easily peeled without hot water.

Large bushy vines are so disease resistant, you don't have to spray or dust. A normal harvest of quality fruit without any disease control.

Mid-season maturity, adapted to practically all of the states. Has proven outstanding even in the tropics.

Price Postpaid

Packet 50¢; ¼ oz. $1.75; oz. $6.50

AMAZING TOMATO TREE

A species of tomato growing in tree form. Very ornamental and a cheerful greeting grown in large flower pots and set in front of opaque glass panels at the front door entrance of your home.

Grown in a greenhouse or outdoors in extreme southern states, bear delicious plum-shaped tomatoes over 12 years, eventually attaining a height of 12 feet.

POSTPAID: Choice of 3 strains—RED, YELLOW and GOLDEN GEM, a new hybrid.

25 seed packet 50¢ (per strain) cultural instructions included.

WILL YOU BE LUCKY?

by an early request to receive our new 1953 seed catalog. The most interesting, printed in America. See our new section, "EXPLORING THE SEED WORLD WITH GLECKLERS." Only a limited number of extra copies will be available.

GLECKLERS SEEDMEN
METAMORA 12, OHIO
Growers Breeders Importers

Kill insects on house plants
this easy way

If you have house plants you should have D-X Aero Spray — makes it easy to kill insects on African Violets, Begonias, Ferns, Ivy and other house plants. You just press a handy button and the container does the spraying. It's handy to use on flowers in the garden, too! It is non-poisonous to people or pets.

D-X Aero Spray — a new low-pressure aerosol spray — contains Pyrethrum, Rotenone and Piperonyl Cyclonene, three powerful insecticides that make sure you get quick, thorough control of aphis, spider mites, thrips, mealy bugs, white fly and other insects.

D-X Aero Spray will shortly be available at your florist, hardware or garden supply store. As an introductory offer we will send you a D-X Aero Spray Bomb for $1.50 postpaid — order yours today!

B. G. PRATT COMPANY
166 MOORE STREET, HACKENSACK, N. J.

Here's a lifetime partner for the fellow who believes in protecting his investment in an attractive, well-managed lawn. Big, powerful and easy to handle, the Hurricane makes short work of your toughest mowing jobs. Hurricane's 20-inch blade keeps established lawns velvety smooth and slashes through high grass and weeds without stalling or faltering. A special grass throwout distributes fine choppings as you move along, giving you a valuable mulch and eliminating windrows. Your lawn looks lovelier, holds up better and is easier to care for when you have the help of a Hurricane!

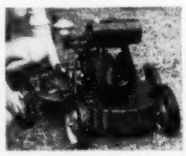
EDGES, TRIMS, MOWS

Hurricane's lightweight maneuverability allows easy edging and trimming around sidewalks, flower beds and driveways. On the open lawn, four big, equal-sized wheels follow the contour of the ground—keep the cutting level constant and prevent ragged, uneven mowing.

EASY TO START

Just a short, easy pull on the starter cord makes Hurricane's powerful engine purr, and you're ready to cut grass. No gadgets to adjust. Built-in automatic governor keeps blade speed constant. Handle folds forward, out of the way, for storing.

SAFE TO USE



A fold-back safety guard protects your hands and feet from rotating blade when engine is started. After mower is running, guard folds up on chassis, permits grass to be thrown out by blade action.

See your dealer today and try out the quality Hurricane. If you don't know who handles Hurricane in your area, we'll be glad to send you the name of your nearest dealer. Just drop us a postcard.

- Suction blade lifts grass for easy cutting
- 2-h.p. 4-cycle gasoline engine
- Adjustable cutting height—½" to 3½"
- Puncture-proof tires
- Rust-proof drive shaft
- Parts and service always available

Hurricane
ROTARY POWER MOWERS

are manufactured by

NATIONAL METAL PRODUCTS CO., INC.

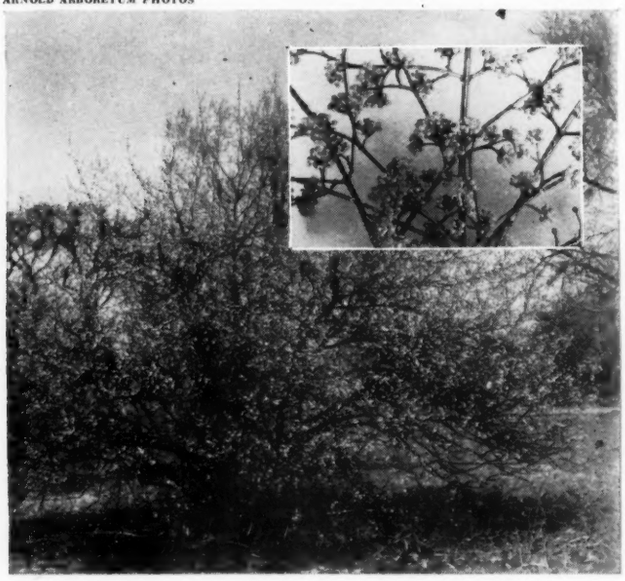
2722 CHERRY STREET, KANSAS CITY 8, MO.

Plant for Permanence

by DONALD WYMAN

Cornelian Cherry

ARNOLD ARBORETUM PHOTOS



THE NAME Cornelian cherry, given this vigorous shrub because of its fruit, is a misnomer. The plant actually is a dogwood, its botanical name being Cornus mas. When one sees it for the first time in full fruit, the chances are he will remember it always, for the elongated, red, cherry-like fruits are unique among the fruits of shrubs and trees commonly found on home grounds. A native of Europe and western Asia, it has been in America for a century or longer and so is widely distributed among commercial nurserymen.

It is really the butter yellow flowers, not the fruit, which make this shrub an important addition to the garden group. They appear early in spring before the blossoms of forsythia but at the same time as those of the red maple or American elm. In New England this is often early April, while farther south it is considerably earlier. The flowers, very small like those of most dogwoods, are, however, not surrounded by the large, conspicuous flower bracts of native flowering dogwood. Very profuse, the blooms literally cover the shrub, appearing before the leaves. By planting the shrub in front of evergreens, the bright yellow effect can be considerably augmented.

One of the joys of having such a shrub in the garden is that the flower buds can be easily forced into bloom by placing cut branches in a warm room in late February or early March. Formed the previous year, the large flower buds are obvious all winter. When forced into bloom in the house, they are excellent in flower arrangements, lengthening by weeks the period during which this shrub can be enjoyed. Cutting such branches for forcing, if carefully done, will not harm the general effect of the shrub one bit and will produce denser branching the following year.

Since the plant blooms so early in spring, the bright red fruits have plenty of time to ripen by midsummer, then measuring about ½ to ¾ inch long. They are fleshy, like those of any cherry, with a single long, datelike stone within. They remain effectively colorful on the plant for six weeks or more. These ornamental fruits are frequently used for preserves, and since they are often borne profusely, are most attractive to birds. The seeds may take two years to germinate unless they are stratified about 140 days in moist peat at a 41° temperature before sown. These shrubs should never be planted with their branches overhanging paved walks or roads because the dropping fruits quickly make a mess and disfigure a white concrete walk. With soil underneath the branches, the fruits quickly disappear.

The glossy green foliage is not susceptible to serious attacks of insects or disease. There may be troubles for this plant in certain parts of the country where Japanese beetles are prolific and, on occasion, eat everything in sight, but here in New England we rarely have to spray it. In fall the foliage turns a dull red, not as brilliant as that of flowering dogwood but nevertheless a very attractive hue.

Because of its dense, twiggy growth, which takes shearing well, the Cornelian

cherry has been used in hedge plantings. However, few flowers are produced and frequent clipping may be necessary to keep the plants restrained.

Sometimes, too, this Old World native is grown with a single trunk as a small tree, reaching approximately 20 feet in height. When this is the case, the vigorous suckers that appear from the base must be frequently cut out.

But when the Cornelian cherry is grown simply as a large specimen shrub with plenty of room for expansion, it requires practically no attention once well established. A broken or irregular branch may have to be removed occasionally, but other than this the pruning shears need not be used. Even very old plants show little deadwood in the center, a valuable trait and another reason why this shrub can be classed with the low maintenance plants becoming so important in our small, modern gardens. As the shrub matures, the many branches formed at the base grow out longer and longer, sweeping the ground and often making old specimens twice as wide as they are tall. One plant in the Arnold Arboretum is 20 feet tall and 50 feet across, never having been pruned since it was planted in 1883. Another plant, 30 years old, is just as high but only 20 feet across. Young specimens, however, can easily be restrained by judicious pruning to fit small areas in the shrub border hedge planting.

Fortunately, the Cornelian cherry can be grown in many kinds of soil. In areas of little rainfall, however, it will not survive. Good garden loam with a normal amount of organic material and moisture are conducive to the good growth of this shrub, just as with other dogwoods. When these are provided, it should be perfectly hardy except in the colder regions of the Great Plains states.▶

Scottish Gardens Cruise

• In the picturesque Highlands of Scotland are many notable gardens reached on land only by long and difficult journeys. But by sea, these gardens can be visited easily on a trip which combines magnificent Scottish west coast scenery with the comforts of a fine hotel. Such a trip has been planned for garden lovers on the T.S.S. Lady Killarney, to leave Ardrossan on May 7 for a one-week voyage. Cost of the cruise varies from $90.00 to $150.00, according to the accommodation provided and includes all meals as well as admission to the gardens. Applications should be addressed to The Organizing Secretary, Scottish Gardens Cruise, National Trust for Scotland, 5 Charlotte Square, Edinburgh 2, Scotland. No applications will be accepted after March 31.

INTER-STATE of Hamburg, Iowa
America's Largest Direct-To-You-Nurseries
present 2 of the
Season's Finest Offers!

10 DOUBLE EVER-BLOOMING TUBEROUS Begonias $1.00 Postpaid & Guaranteed

Never before offered by Inter-State to the readers of this magazine at this amazing low price!

PLANT IN SHADY SPOTS FOR LASTING SUMMER BEAUTY!

These imported Belgium bulbs are top quality, big, vigorous blooming, mature bulbs (fully 1 to 1¼ inches in diameter). We send 10 of these choice blubs in assorted colors, ranging through shades of Red, Pink, Orange and Yellow—flowering into gorgeous double camellia type blossoms. These INTER-STATE bulbs will bloom for you this summer as outdoor plants. Then in fall repot bulbs and enjoy glorious blooms all winter. These are truly wonderful bulbs and our most popular offer. Order yours now! And remember, they make fine presents for friends and relatives.

INTERSTATE'S Triple-Guaranteed RAINBOW COLLECTION!

America's Favorite Flowers for Cutting!

50 VIGOROUS GLAD BULBS $1.00 Postpaid & Guaranteed

TRIPLE GUARANTEE
1. Bulbs guaranteed satisfactory.
2. Guaranteed to bloom this summer.
3. Flowers guaranteed to please you.

We believe this Rainbow Glad Collection is the finest in America. Handmade from famous named varieties, colors ranging from white to dark purple, red, pink, yellow, blue, lavender, orange, and lovely blends. When they bloom this summer, you will recognize outstanding prize winners. Large flowers, many ruffled, on tall spikes of breath taking beauty. These bulbs are first quality, 1 to 1¼ inches in diameter. Regular catalog price of these same bulbs is 30 for $1.00. Order freely TODAY at this special price

FREE 1953, 84-page SPRING CATALOG containing over 1000 guaranteed offers! Rush coupon or postcard TODAY for your FREE catalog!

INTER-STATE AMERICA'S LARGEST Direct-to-You NURSERIES
433 E STREET HAMBURG, IOWA
☐ FREE 1953 Spring Catalog
☐ I enclose $1.00 for the 50 Rainbow Glads.
☐ I enclose $1.00 for Begonia Special (10 bulbs).
NAME _____
R.F.D. or ST. ADDRESS _____
CITY _____ ZONE ___ STATE _____

Springtime is Spray Time

Warm Weather makes your garden grow and also stimulates the development of the pests that attack your garden. Insects hatch and fungus diseases thrive. During the early days of spring, aphids and other soft-bodied insects multiply rapidly and powdery mildew often appears on your plants.

For effective control of these pests, start early to spray regularly with a combination of Black Leaf 40® and Black Leaf® Lime Sulphur Spray. This reliable combination spray contains an excellent spreader which insures penetration into hard-to-reach places for control of mildew. Follow directions on each package.

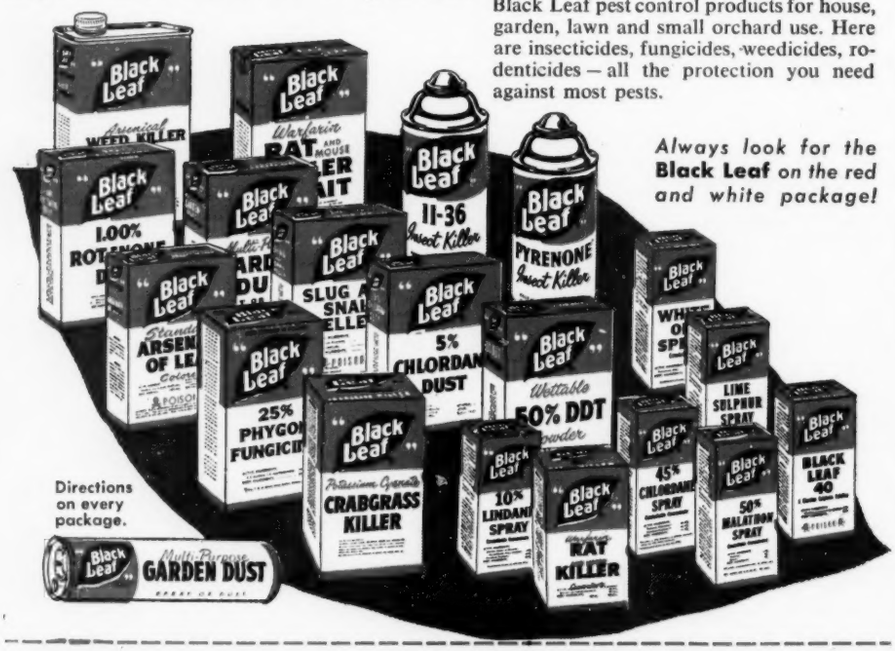
It quickly kills *(by contact and by fumes)* aphids, leafhoppers, most thrips and other soft-bodied sucking insects. It does not destroy friendly insects that attack your insect enemies. It also spares bees—the pollenizers. It provides the dependable protection your garden needs in the early spring.

Your lawn also needs protection against insect damage during the warm days ahead. Black Leaf 45% Chlordane Spray provides quick, easy, economical and highly-effective control of soil and turf insects, such as chinch bugs, Japanese beetle larvae, ants, mole crickets, ear-wigs, lawn moths, spiders and grasshoppers.

Your best answer to any pest control problem is a reliable dependable Black Leaf product

Illustrated below is the complete line of Black Leaf pest control products for house, garden, lawn and small orchard use. Here are insecticides, fungicides, weedicides, rodenticides – all the protection you need against most pests.

Always look for the **Black Leaf** *on the red and white package!*



Directions on every package.

Sold by Better Dealers Everywhere

These covers were tops in 1952

1. OCTOBER

2. JANUARY

3. JUNE

4. APRIL

COUNTING ballots in our Cover Poll is like taking stock of the garden when the season is over. We note with satisfaction which covers have given our readers the greatest pleasure and excited the most interest.

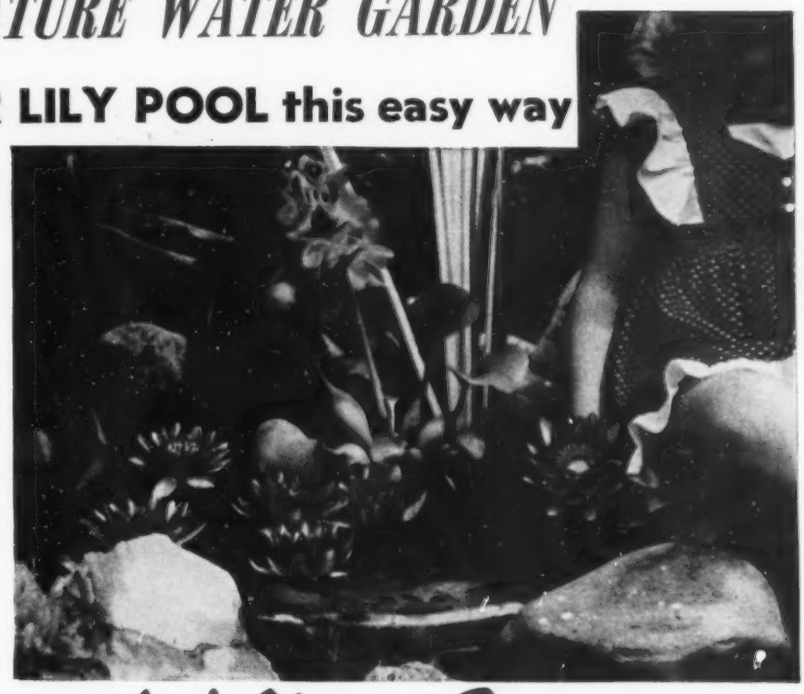
African violet fans were vocal in their approval of October's cover featuring their favorite flower and thanked us for a second view of it in our new section, The Gardener Indoors. Some readers thought it far surpassed the other covers, but for a few it was a difficult decision. One woman wrote, "I've had my 12 issues spread out for two days while trying to decide, and I'm still not sure."

In second place came the rose and viola arrangement cover for January. America's favorite flower took honors again on the third place June cover with a single magnificent blossom of the All-America rose Chrysler Imperial. A view of ice-covered Mt. Washington with pink rhododendrons in the foreground received special praise as the fourth place April cover.

As the contest closed in January, first-place votes added up as follows: October, African violet, 264; January, Vogue rose arrangement, 183; June, Chrysler Imperial rose, 130; April, rhododendrons in landscape, 107; May, tulip garden, 61; December, Christmas rose arrangement, 59; November, harvest composition, 58; March, daffodils, 46; July, daylily arrangement, 34; September, tulips, 23; February, gladiolus arrangement, 22; August, hybrid lilies, 3.

Slocum's MINIATURE WATER GARDEN

Make your own WATER LILY POOL this easy way



NOW EVERYONE young or old may enjoy the serene majestic beauty of a lily pool, even in limited space. Try it! Get started with this inexpensive trial offer:

COMPLETE TUB GARDEN

1 White Cedar Tub (21" wide)
1 Exquisite Slocum Water Lily (Choice of colors in coupon)
1 Pickerel Rush
1 Water Hyacinth
5 Snails (for scavengers)

GUARANTEED TO GROW!

ALL FOR ONLY $7.50

Just sink tub in earth, fill half full of soil, fill with water and plant your garden. If you have a tub, we'll send the collection as above, minus tub.

ALL FOR ONLY $4.25

ORDER TODAY! Free—2 choice gift plants with $7.50 orders received BEFORE April 15th. We will ship via railway express at *proper planting time* for your locality. Simple planting instructions with every shipment.

PLANT THESE *Beautiful New Creations*

PINK SENSATION Originated at our famous Slocum Gardens. The "Pink Water Lily of Tomorrow". **NOW JUST $5.00**

HEAVENLY BLUES
Pamela (above) King of Blues (right) Outstanding bloomers. Should give you 100 or more flowers.

Both Lilies Now for Just $6.25

In Your Lily Pool

If you've never experienced the joy of growing water lilies in a garden pool, begin the above simple way. Later, expand and add other exquisite Slocum tropicals or hardy perennials like these at the left.

Perhaps you already have a lily pool. This year, replace worn-out lilies with Slocum's gorgeous galaxy of fresh exotic colors, and your pool will be the envy of the neighborhood!

ORDER NOW for prompt delivery at *proper planting time.* Fill out and send the coupon below, with check or money order for the offers described, *or*

GET OUR FREE 1953 CATALOG

Beautifully illustrated in natural Ansco color and Kodachrome. Shows our full, exciting line of Water Lilies, Lotus, and fancy goldfish. Also gives details of Slocum's positive guarantee of satisfaction.

SLOCUM'S "Finest in Water Lilies"

Send $7.50 Order *Before* April 15th and receive *Free*—two Choice Water Plants. Do It Now!

SLOCUM WATER GARDENS
Dept. F-3, 950 Front St., Binghamton, N. Y.

Enclosed is $..... Please send me at proper planting time, the items checked below:

☐ COMPLETE TUB GARDEN @ $7.50 (underline choice of lily color: Red, Yellow, Pink, Blue, Purple, Changeable.)

☐ TUB COLLECTION without TUB @ $4.25 (underline choice of lily color: Red, Yellow, Pink, Blue, Purple, Changeable.)

☐ PINK SENSATION (Number) @ $5.00 each

☐ HEAVENLY BLUES DUET (Number) @ $6.25 each Duet or $3.50 each lily.

☐ Send me your free catalog: "Everything for the Lily Pool"

Name .....

Address .....

City ..... Zone ..... State .....

Please print plainly. No cash or C.O.D.'s please.

Come to Binghamton (Water Lily Center of America) and visit us this summer. Thousands were thrilled last summer by our beautiful lilies—many were 10 or more inches across. Our water gardens cover 10 acres.

BROWNELL EVERBLOOMING PILLARS

THEY are in a class by themselves. Selected varieties bloom more and more constantly than any other class of Everblooming Climbers. Did you ever see more beautiful Roses? The pictures are from actual color photographs and the blooms can average nearly twice as large. We have hundreds of these varieties. Selections grown can be cut back as giant Hybrid Teas; as everblooming Rose bushes in the lawn 6 to 8 feet tall; or as everblooming climbers tall as other climbers. They bloom the first year planted, like Hybrid Teas, and thereafter; canes often mature the first year to set blooms in clusters at their terminal ends, and thereafter.

Healthy wood is safe down to about 15° below zero without protection. We call them PILLARS to avoid confusion with other everblooming climbers. Now introduced under color numbers. Selections later from thousands will have names.

Entertain your gardening friends by showing them something new, beautiful and different.

▶ **Three plants** of this marvelous innovation **only $10.00**

▶ **Three plants** Hybrid Teas No. 1 Grade **only $5.00**

Send for free pictured list of sub zero Hybrid Teas, Floribundas; and Hardy Climbers.

BROWNELL ROSES

▲

Little Compton, Rhode Island

Enclosed $10.00.....

Send your selection 3 plants Brownell Everblooming Pillars to:

NAME .....

STREET .....

CITY .....STATE .....

Spring Flower Shows and Pilgrimages

DATE	SHOW
Feb. 28–Mar. 8	CLEVELAND HOME AND FLOWER SHOW, Public Auditorium, Cleveland, Ohio
Mar. 5–11	NATIONAL CAPITAL FLOWER AND GARDEN SHOW, National Guard Armory, Washington, D. C.
Mar. 6–9	METROPOLITAN MIAMI FLOWER SHOW, Key Auditorium, Miami, Fla.
Mar. 8–14	INTERNATIONAL FLOWER SHOW, Grand Central Palace, New York, N. Y.
Mar. 12–22	CALIFORNIA INTERNATIONAL FLOWER SHOW, Hollywood Park, Inglewood, Cal.
Mar. 14–17	INTERNATIONAL FLOWER AND GARDEN SHOW, Hotel Shamrock, Houston, Tex.
Mar. 14–May 14	INTERNATIONAL FLOWER EXHIBITION "FLORA 1953," Haarlem, Holland
Mar. 15–21	NEW ENGLAND SPRING FLOWER SHOW, Mechanics Building, Boston, Mass.
Mar. 16–21	SPRING FLOWER SHOW, Commercial Museum, Philadelphia, Pa.
Mar. 20–29	SPRING FLOWER SHOW AND GARDEN PILGRIMAGE, Electric Building, State Fair Grounds, Dallas, Tex.
Mar. 21–29	MICHIGAN FLOWER AND GARDEN EXHIBITION, Detroit, Mich.
Mar. 26–29	AZALEA FESTIVAL, Wilmington, D. C.
Apr. 6–12	PUYALLUP VALLEY DAFFODIL FESTIVAL, Tacoma, Wash.
Apr. 18–19	SPRING FLOWER SHOW, Mobile, Ala.
Apr. 23–25	AFRICAN VIOLET SOCIETY OF AMERICA SHOW, Nashville, Tenn.
Apr. 23–26	INTERNATIONAL CYMBIDIUM ORCHID SHOW, Santa Barbara, Cal.
Apr. 25–26	SPRING FLOWER SHOW, King County Recreation Hall, Enumclaw, Wash.
Apr. 30–Oct. 11	INTERNATIONAL HORTICULTURAL EXHIBITION, Hamburg, Germany
May 17–19	LOUISIANA STATE HORTICULTURAL ASSOCIATION CONVENTION, Jung Hotel, New Orleans, La.

Garden Pilgrimages

Feb. 28–Mar. 29	NATCHEZ PILGRIMAGE, Natchez, Miss.
Mar. 9–11, 18–20	COLONIAL WILLIAMSBURG GARDEN SYMPOSIUM, Williamsburg, Va.
Apr. 5–19	NEW ORLEANS SPRING FIESTA, New Orleans, La.

FALL GHOST

Though it is spring
Someone is burning leaves
From the autumn past.
The smoldering fog of smoke,
Rolling above the grass,
Weaving between the boughs,
Brings an odor of another season.
How can flowers now
Pierce through the soil? What reason
Can the blades see to unfurl?
Surely there must be fruit to ripen
When smoke tendrils curl.

—DOROTHY WAUGH

LONG ISLAND'S SUPER GARDEN CENTER

Garden World, inc.

FRANCIS LEWIS BOULEVARD at 46th AVE.
FLUSHING, L. I.

America's Largest One-Stop Self-Service Garden Supermarket!

Genuine Full-Grown Cattleya

ORCHID PLANTS

at Blooming Age!

each **$1.00** 3 for 2.75 6 for 5.00

Add 25c for prepaid delivery

Have fun! Save money! Grow exquisite corsage orchids at home! Plants will be worth much more next year! Will pay for themselves many times over in corsage flowers!

A special purchase of surplus stock from one of America's largest commercial orchid growers enables us to offer *top-quality plants at a fraction of their regular value!* Not the so-called orchid species, or wild swamp varieties, but genuine Cattleyas—the corsage orchids you see at florists! *Surprisingly easy to grow at home,* these mature plants can be brought into flower again next Christmas with very little care or special conditions. Just follow the simple cultural instructions included with each plant. *We supply all the special osmunda fibre necessary for you to grow these plants in . . .* and watch them increase in size, yield and value every year! *Absolute money-back guarantee if not satisfied.*

Mail orders promptly and carefully filled. Send check, cash or money order. *Add 25c for prepaid delivery.* C.O.D.'s sent charges collect. In N. Y. C. add 3% sales tax. Address: Garden World, Dept. FG3, Francis Lewis Blvd. and 46th Avenue, Flushing, N. Y.

the hard work out of lawn care

Now . . . trim as you mow around trees, along fences, flower beds and sidewalks. Vollrath Advanced Design rotary power mowers make short work of long grass in those hard-to-reach spots. Fast, neat and even . . . Eliminate raking, too! Model LM16-2 (below) makes a full 16" cut. Sturdy, lightweight construction and balanced design give real maneuverability . . . even over rough lawns. Directly powered by a 1.2 H.P. 2-cycle gasoline engine for economical operation. Priced to fit your budget. For complete information, see your dealer or write:

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SINCE 1874

Model LM16-E same as LM16-2, but powered by 1/3 H. P. 110V AC electric motor.

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Old Fashioned Historical

Roses

EVERY grown man and woman cherishes some memory of the fragrant roses of long ago. These are the roses of song and story —stirring nostalgic memories of crinoline and brocade—making "conversation pieces" in your garden.

Because we believe they should not be forgotten and because garden-lovers of discrimination love and cherish them, we are offering this special collection, available in America only from Bobbink & Atkins. Treat them as low-growing shrubs (3 to 5 feet). Their care and culture is simple. Their hardiness unquestioned. Fine for landscape use and for cutting.

CARDINAL DE RICHELIEU. (1840. Gallica.) Violet blue. $2.25

HARISON'S YELLOW. (1830. Scotch.) Brilliant yellow. $2.50

MARIE LOUISE. (1813. Damask.) Rich deep pink. $2.25

MME. LOUIS LEVEQUE. (1898. Moss.) Brilliant salmon-pink. $2.25

ROSA GALLICA. (1749. Gallica.) Large single dark pink. $2.25

ROSA MUTABILIS. (1820. China.) The rose of many colors—pink, yellow, buff and orange—on one plant at one time. Truly beautiful all summer. $2.25

ALL 6 for $11.85
(Regular value $13.75)

Postpaid East of the Mississippi; add 10% elsewhere in U. S. A. These are big, husky, two year old plants. Our catalog, "Garden Gems" mailed free with this order.

You need "Garden Gems" for a beautiful flower-filled garden this spring.

"Garden Gems" is the title of our new and most unusual catalog. Illustrated in beautiful colors, it contains accurate descriptions of both old and new varieties. Valuable suggestions for planning and planting your garden. Read about the new roses including the All-America selections. (Do not get the idea we specialize in Old Fashioned roses.) Then too, there are a great number of *Perennials, Evergreen Trees* and *Shrubs, Flowering Shrubs, Azaleas, Rhododendrons, Lilacs,* etc. that are not obtainable elsewhere.

Please send 35¢ for this new, full color catalog including free 50¢ Certificate which when returned with your order for $5.00 or over, will be honored as cash. (Customers of record receive catalog without request.)

BOBBINK & ATKINS

Rose Growers and Nurserymen since 1898

584 Paterson Avenue East Rutherford, N. J.

Visitors invited. Plants ready to take with you during the active planting seasons

March Pointers

TIPS ON FRUIT GROWING FOR NORTHERN GARDENERS

by P. J. McKENNA (N. Y.)

MARCH brings flower shows, nursery catalogues and an urge to get things done before spring's full impact hits the garden. This impulsive quickening of pace holds its dangers; gardeners want to get out and uncover plants on the first warm day. Don't do it! After protecting the plants from freezing winds all winter, you'll just undo your work. Part of the excess might be cleared away in some areas, but most of it should stay put until weather gives signs of being permanently settled. In colder sections of the northern states, it will be next month before any thought of spring occurs.

Fruit Growing

Home owners show an increasing tendency to grow fruits in the garden and set out fruit trees as ornamentals. These projects are not always rewarded with harvests for the table. More than a little of the difficulty is due to site and soil; a good bit of the rest to an improper understanding of varieties.

Fruit plants need full sun; no use trying to grow them in the shade—buds will not form. And what is more, the plants will be even more subject to attacks by insects and disease than they usually are.

As for soil, it must be good. A poor soil, however, can be improved to accommodate certain kinds of fruits. All of them need plenty of organic matter, preferably in the form of manure and/or compost. If these are not available, peatmoss combined with dried cattle manure makes a fair substitute. Indeed, it is amazing how much improvement can be seen the first year, from the addition of these materials.

The available space will determine what and how much can be grown. The bush fruits—raspberries, blackberries, currants and gooseberries—fit into restricted areas, but the tree fruits such as apples, pears, plums, cherries, and apricots need room. Standard trees of most of these kinds grow large—an apple tree will reach 40 feet in height and have a spread of at least 30 feet. You cannot put very many of these on a small lot. Pears are not so overpowering, while peaches, plums and quinces are in fair scale to most home grounds. A cherry tree, however, is quite large.

More suitable for the suburban property are the dwarf trees. Growing some 12 to 15 feet in height, they are easier

DE LA MARE.

Standard apple trees take up lots of space, attaining 40 feet high, 30 feet wide. Two varieties are needed for fruit; some take a long time before starting to bear.

NEW Chemical Grass Trimmer

SAVES WORK OF MOWING LAWN EDGES!

Sprayed Grass Grows So Slowly It Needs Only 1 or 2 Cuttings During Entire Season!

No more tiresome drudgery! No more mechanical edging of lawns and driveways, on your hands and knees, in the hot summer sun! Let STOP-GRASS do it for you! Just apply with ordinary sprayer or sprinkling can!

New Kind of Product!

Never before has there been anything like STOP-GRASS! When sprayed on grass early in the Spring it makes the grass grow so slowly it does not have to be cut for *4 to 5 MONTHS!* If the early Spring spraying is missed, later Spring application slows growth so that cutting won't be needed for 4 to 6 weeks or even longer!

Saves Mowing on Connecticut Parkways!

When this material was sprayed on grass areas along Connecticut parkways early in the 1951 season, and the grass cut about a week later, *no other mowings were needed from June right through September.* When the equivalent of half-strength STOP-GRASS was sprayed on roadside grass areas early in May, followed by one mowing 3 weeks later, the grass grew so slowly that only one more cutting was needed all season. *But 19 mowings were needed on adjacent grass areas which had not been sprayed!*

Saves Grass-Cutting in Ohio, Illinois, Texas!

When this material was sprayed on roadside grass areas in Ohio, on grass around cemetery monuments in Chicago, and on certain grasses in Texas, growth was so slow that only 1 or 2 cuttings were needed after the early Spring spraying.

Fall Spraying Delays Growth in Next Year!

Even more amazing is the fact that spraying grass in the *late Fall* will delay grass growth *in the next year* so that only 1 or 2 mowings may be needed all season long!

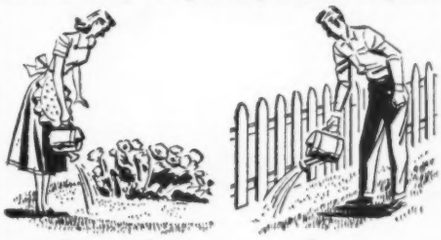
SAVES HOURS OF WORK!

Around lawn ornaments *Around Trees*

Think of the hours of back-breaking work you can now save! Instead of repeatedly edging and trimming grass in difficult-to-mow places, you can now let STOP-GRASS do most of the work for you!

MANY USES FOR STOP-GRASS!

Use STOP-GRASS in 6 to 12 inch strips on grass along edges only of lawns, flower-beds, driveways, curbs; next to hedges, fences, walls, buildings; around ornaments, furniture, trees, shrubs, cemetery monuments; and on grass edges in similar places



Flower-beds *Fences*

where mowers won't work or where tiresome mechanical edging is needed. It may also be used generally on certain grass areas such as vacant lots, roadsides, and on waste grass areas where height of grass must be kept low. If broad-leaved weeds are present in Spring, STOP-GRASS can be combined with 2,4-D amine salt.

Fully Tested! Developed by Famous Company!

STOP-GRASS contains maleic hydrazide, the new chemical developed by the research laboratories of the great Naugatuck Chemical Division of the U. S. Rubber Company. In cooperation with prominent Universities, the U. S. Dept. of Agriculture, and many other leading organizations, maleic hydrazide has been extensively tested and proved for slowing down the growth of grass to save tedious hours of work in mowing lawn edges and other grass-cutting applications. It is now offered for the first time as

Stop-GRASS

Trade mark

The Chemical Grass Trimmer

Supply Will Be Limited!

ORDER YOUR STOP-GRASS TO-DAY!

Be Sure To Have It On Hand EARLY, When You'll Need It!

1½ oz. for 800 ft. 6 in. wide	(400 sq. ft.)	$1.00
4 oz. for 2200 ft. 6 in. wide	(1100 sq. ft.)	2.25
1 lb. for 8800 ft. 6 in. wide	(4400 sq. ft.)	6.00

Makes TOMATOES Ripen 1 to 3 WEEKS EARLIER

NO-SEED HORMONE

Blossom-set

You can pick RIPE tomatoes, WEEKS EARLIER than your neighbor! You'll get BIGGER yields of LARGER, MEATIER, more DELICIOUS TOMATOES.

SEEDLESS TOMATOES, too!

EASY TO USE!

Just Spray the Plants with An Ordinary Sprayer!

STOPS BLOSSOM DROP! MAKES BLOSSOM SET FRUIT!

Early tomato blossoms often drop off the plants without setting fruit if they are not pollinated properly, especially early in the season when nights are cool and days are short and cloudy. Spraying with BLOSSOM-SET keeps blossoms on plants. The hormone starts fruit development immediately by chemical stimulation of the flowers. These flowers set fruit instead of dropping off; they develop into ripe tomatoes *weeks earlier* than unsprayed flowers. Tomatoes are larger, meatier, firmer, better-tasting. *You've never tasted such wonderful tomatoes!* They possess better shape and color and there are more on each plant. Many are SEEDLESS because fruit is set chemically, not by pollen.

Try a bottle and see for yourself! Be sure to leave some plants unsprayed and compare the results. Your neighbor will be amazed!

4 oz. bottle makes 1 gallon	75¢
1 pint makes 4 gallons	$1.75
Agric. Conc. makes 50 gallons	5.95

BERRY-SET

Hormone for Bigger STRAWBERRIES!

Raspberries, blackberries, too! If you want bigger, sweeter, meatier berries; berries that bear longer, taste better; you'll want to spray them with BERRY-SET.

Imagine getting berries **50 to 100% Bigger!** Imagine eating bigger, meatier, more luscious-tasting strawberries **with fewer seeds!** And you harvest the berries over a longer period of time. Much bigger yields, too.

Just spray plants in blossom stage and you'll get luscious berries like these.

1 oz. makes 4 gals.	50c
3 oz. makes 12 gals.	$1.00
12 oz. makes 48 gals.	$3.00

Take-Hold Plus

PLANT FOOD Plus HORMONE

MAKES PLANTS GROW UNBELIEVABLY *FAST!*

Plants mature earlier, bear longer, have more luxuriant foliage, bigger and more beautiful blooms, bigger fruits, greater vigor!

TRANSPLANTS "TAKE-HOLD" MUCH *QUICKER!*

Resume growth faster; need fewer replacements; develop better, stronger root systems much faster. 250 tomato plants were set out on a hot, sunny, mid-afternoon; not a one wilted; not a one had to be replaced. They had been set out with Take-Hold PLUS!

DISSOLVES QUICKLY, COMPLETELY, IN WATER!

VERY HIGH ANALYSIS! 10-52-17! Contains more plant nutrients than most all others. Add up the analysis! 10% Nitrogen; 52% Phosphoric Acid; 17% Potash. **79% active,** immediately available plant nutrients! PLUS a root-developing **hormone!**

USE TAKE-HOLD PLUS FOR EVERYTHING THAT GROWS!

Wonderful for **TOMATOES . . . ROSES . . . STRAWBERRIES . . .** and all FLOWERS, VEGETABLES, TRANSPLANTS, LAWNS, EVERGREENS, HOUSEPLANTS. Marvelous for **AFRICAN VIOLETS!** And for rooting of cuttings, too!

4 oz. can makes 4 to 8 gallons	50c
12 oz. can makes 12 to 24 gallons	$1.00
2 lb. can makes 32 to 64 gallons	2.25
5 lb. can makes 80 to 160 gallons	4.50

If your dealer does not have the products described on this page, ORDER DIRECT FROM

SCIENCE PRODUCTS COMPANY 1230 E. 63rd St. Dept. F-23 Chicago 37, Illinois

No Stamps, No COD's . . . Please!

RARE BULBS

The chance of a lifetime—if you are interested in Rare and Unusual bulbs. Our buyer has scoured the world to bring to you these fascinating bulbs at hitherto unheard of prices.

AMARYLLIS-IMPORTED STRAIN. Never before have separate color Amaryllis been offered in such a wide range of colors, and at so low a price: Giant blooms up to 10 inches across. Available in 10 colors: ☐ Dark Red, ☐ Light Red, ☐ Pink, ☐ Rose, ☐ Apricot, ☐ Pure White, ☐ Purple, ☐ Orange, ☐ Red and White Striped, ☐ Two-Tone colors. **$2.00 each; 3 for $5.00; 1 each of the 10 colors—$15.00.**

CURCUMA ZEODARIA. (India Ginger Lily). Huge Spikes of exotic blooms are borne on naked stems in the spring, followed by handsome foliage in the summer. Suitable for pots or garden. ☐ **$2. each; ☐ 3 for $5.**

EUCHARIS AMAZONICA. (Eucharist or Amazon Lily). Pure White, fragrant flowers, graced with a chalice-like cup, also white, make these ideal for corsages or cut flowers. Can be flowered 3 or 4 times a year. Also fine for pots. Recommend planting 3 per pot. ☐ **$1.00 each; ☐ 3 for $2.00.**

GLORIOSA ROTHSCHILDIANA. Exotic "Climbing Spider Lily". Sensation of flower shows everywhere. The reflexed blooms are deep red, edged golden yellow. Ideal for corsages. Can be grown in pots or in the garden. ☐ **$1.50 each; ☐ 4 for $5.00.**

GLORIOSA SUPERBA. Similar to Rothschildiana above, but soft orange. May be combined with above at **2 of each for $5.00. Otherwise ☐ $1.50 each; ☐ 4 for $5.**

HAEMANTHUS MULTIFLORUS. The famous "Blood Lily" of South Africa—one of the rarest and showiest members of the Amaryllis family. Bears large foot-ball shaped umbels of blood-red flowers. Seldom seen, it is an "eye-stopper" whenever exhibited. Never before offered at this low price! ☐ **$2.00 each; ☐ 3 for $5.00.**

ISMENE CALATHINA. The famous "Peruvian Daffodil", so called because the large, fragrant white trumpets resemble a mammoth daffodil. Fine for pots or garden. **Mammoth Size! ☐ $1.00 each; ☐ 3 for $2.00.**

TREE PEONIES. Aristocrats of the Peony family. Seldom offered, we were fortunate in procuring a few hundred. Over 50 varieties available in a wide range of colors. Two-year old, grafted roots. ☐ **$2. each; ☐ 3 for $5.**

Hardy LILY BULBS

Our lily storage cellars, built right into the ground, make Spring plantings not only possible, but preferable to Fall plantings, especially in the Northern States where early freezes, and winter damage are the rule rather than the exception. Tests of Spring planted bulbs show no loss of color, size, or number of blooms!

Try these "extra-size" bulbs for exhibition blooms. They're plump, healthy, bursting with vigor, carefully packed in peat and in pliofilm bags to retain full vitality. We guarantee you'll be converted to Spring planting—and in every other respect—or your money back!

- ☐ L. Auratum Platyphyllum $1.00
- ☐ L. Brownii. (Very scarce) $1.00
- ☐ L. Centifolium ..... 2 for $1.00
- ☐ L. "Fire King". Bright red $1.50
- ☐ L. Formosanum. Late variety ..... 3 for $1.00
- ☐ L. G. C. Creelman. New Regale ..... 2 for $1.00
- ☐ L. Giganteum Himalaicum. The Giant Lily. Grows up to 10 ft. high $1.50
- ☐ L. Hansoni. Orange-yellow $1.00
- ☐ L. Henryi. Deep orange ..... 2 for $1.00
- ☐ L. Japonicum. Pink ..... 2 for $1.00
- ☐ L. Maxwill. New and fine ..... 2 for $1.00
- ☐ L. Orange Triumph ..... 2 for $1.00
- ☐ L. Rubellum. Pink. Dwarf ..... 2 for $1.00
- ☐ L. Tenuifolium. Coral. Red ..... 4 for $1.00
- ☐ L. Ten. Golden Gleam. Yellow ..... 4 for $1.00
- ☐ L. Tigrinum. Double variety ..... 2 for $1.00
- ☐ L. Willmottiae Improved ..... 3 for $1.00

GROWERS EXCHANGE, INC.
24700 Drake Road, Farmington, Mich.

Enclosed find $..... Send me the items checked above at proper time. I understand I am to be completely satisfied or my money will be refunded. (Orders of $5.00 or over shipped postpaid; under $5.00 add 25¢ for handling. Sorry – no C.O.D.'s)

NAME.....

ADDRESS.....

CITY..... STATE.....

to prune and spray, and the fruits are within easy reach for harvest. These smaller trees begin fruiting sooner than the standard kinds, and since they occupy less space, several can be planted. Espaliered trees take even less room, and they can be trained against walls or to act as a screen on a fence. Some people grow them effectively on stout wire and stakes —along a path, for instance.

Dwarf apples and pears are readily obtainable, but the dwarf plums, cherries and peaches are not easily found in many areas. In the Northwest the new cherry-plum hybrids are providing excellent fruit where winter temperatures are extreme. They are small trees which bear heavy crops of plums and cherries. Although the fruits are not so large as those on regular trees they make fine eating, and the size of the trees commends them for the small garden.

In dwarf fruits, only the tree is dwarf. The fruit is normal in size; in fact, some are even bigger than those from standard trees. When buying them, you merely pick the variety of fruit which is desired, then specify a dwarf tree. This suffices for ordering all kinds except apples. The dwarf apples come in various sizes ranging from a 9-foot tree to a semidwarf that grows 20 feet or more tall. They are classified under number. The one best suited to the small garden is known as Malling No. 9 (Malling being the name of the experiment station in England responsible for the classification of dwarf apples). Malling No. 9 grows 9 to 10 feet tall, and the trees can be set 12 feet apart. Thus, an order for a dwarf apple might read: 1 McIntosh apple on Malling No. 9.

DE LA MARE

The dwarf apple fits into small gardens, bears a good crop soon after planting.

National Garden Program

• Home gardening and landscaping are receiving increased attention in the 1953 National Garden Program. In addition to information on home and commercial production and use of fruits and vegetables, the national and state extension services are emphasizing the importance of beautifying home grounds and communities with better lawns, trees, shrubs and flowers. You can receive help with your own garden problems through garden clubs and other local organizations participating in the program.

Depth of planting is particularly important for fruit production on dwarf trees. If the grafted section on the stem is deep enough to be covered with soil, new roots will grow out from the stem above the graft. When this happens, the tree no longer stays dwarfed, and will, in time, grow to a full-sized tree that takes years to come into bearing. The swelling, or ring, on the stem above the roots indicates the grafted section. This must be above soil level when the tree is set out.

Whatever the kind of fruit—apple, pear, peach or something else—it is important to look into the different varieties. None of them is alike, and they are bred for some particular character which, more often than not, is related to a particular region of the country. Varieties that are popular in the Midwest are not always successful in the East. Farther north, still others are generally planted.

And what is more, garden varieties of fruits differ from the commercial varieties. The latter have been developed to stand up under shipping and handling, while home-grown fruit need travel only from tree to house. The state college or agricultural experiment station nearest you is the best source of information on fruit varieties to grow in your locality.

Pollination

On the home grounds, where fruit trees are set out here and there, perhaps the greatest difficulty involved in selecting tree fruits is pollination. Fruits are formed after the blossoms fall, but a tree covered with blossoms in May is no guarantee of a crop of apples, pears or sweet cherries that fall. Only when the flowers are fertilized with pollen from another variety—not just another tree of the same variety—will fruiting occur. Trees needing this cross-pollination are known as self-unfruitful, and two varieties must be planted to insure the needed cross-pollination for a fruit crop. There are, of course, fruits that are self-fruitful. Sour cherries, quinces, peaches and apricots will produce a harvest if only one tree or one variety is planted.▶

$1.00 BARGAINS

EXCEPTIONAL SPRING VALUES

We proudly present the "Cream of the World's Crops"! Each item produced by an outstanding specialist, and offered directly to you at these amazingly low prices. All bulbs and plants guaranteed to be blooming size, to arrive in good condition, and to satisfy in every respect. All stock shipped at proper planting time.

Any 6 Specials . . . $5.00 Postpaid

Any 12 Specials . . $10.00 Postpaid

25 LUCKY SHAMROCK Bulbs

Lucky Four Leaf Clover. Dainty pink flowers bloom profusely all summer. Dwarf. Ideal for rock gardens, pots.

$1.00 Special No. 23

10 Summer HYACINTH Bulbs

(Galtonia.) Grow 5 ft. tall. Bear great, loose spikes of waxy white flowers. Very striking and unusual.

$1.00 Special No. 24

5 Fancy CALADIUM

The large, highly variegated, almost transparent leaves of these unusual tropical plants will brighten any shady border, porch box, or room. Assorted colors.

$1.00 Special No. 14

8 TUBEROUS BEGONIAS

Double-flowering, camellia - type. Aristocrats of the shade - loving plants. Striking green leaves—large double flowers. A "must" for every garden. Assorted colors.

$1.00 Special No. 1

12 Abyssinian GLADIOLUS

Dainty, cream-white flowers, with a splash of chocolate in the throat, and a sweet fragrance. Handle same as gladiolus.

$1.00 Special No. 25

10 TIGRIDIA

Delicate "Shell Flowers" of unusual color and brilliance. Seldom offered. Assorted colors. Make very decorative cut flowers.

$1.00 Special No. 15

5 Hardy ORCHID Roots

(Bletilla Hyacinthiana). Hardy Chinese Terrestial Orchid. 12" stems bear dainty, orchid-shaped mauve flowers. Likes semi-shade. Excellent for rock gardens.

$1.00 Special No. 2

3 Hardy AMARYLLIS Bulbs

Amaryllis Halli (Lycoris Squamigera). "Magic Lily of Japan." In late Spring foliage disappears, and a spike of lavender flowers springs, like magic, from the ground. Hardy.

$1.00 Special No. 3

20 ANEMONE Bulbs

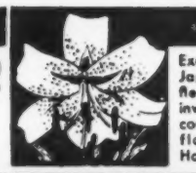
"Wind Flowers". Monarch de Caen and St. Brigid types. Assorted exceedingly brilliant colors.

$1.00 Special No. 16

7 REGALE LILIES

America's favorite garden lily. Fragrant, perfectly hardy, and a profuse bloomer. Large white trumpets on tall stems; buds are suffused red before opening.

$1.00 Special No. 4



4 RUBRUM LILIES

Exotic pink lilies from Japan. The graceful reflexed petals make them invaluable for use in corsages, and artistic floral arrangements. Hardy.

$1.00 Special No. 5

20 RANUNCULUS

Vivid, large double flowers in a wide range of bright colors. They make magnificent cut-flower bouquets.

$1.00 Special No. 17

4 AURATUM LILIES

The "Gold Banded-Lily." A prominent gold band on its petals gives this outstanding favorite its name. Imported from Japan. Hardy.

$1.00 Special No. 6

7 TIGER LILIES

Attractive, large orange flowers with reflexed petals. An exceptionally vigorous, hardy strain imported from Holland.

$1.00 Special No. 7

15 TUBEROSE Bulbs

Everblooming, pure white, wax-like flowers. Easily grown, they will fill your garden or room with the fragrance of orange-blossoms.

$1.00 Special No. 18

7 ESTATE LILIES

A truly hardy "Easter" lily! Attractive foliage, graced with exceptionally large, pure white blooms. Excellent for cutting, as well as outdoors.

$1.00 Special No. 8

3 CALLA LILIES

Ideal house plants, Callas can also be transplanted outdoors for exceptional beauty around pools, rock gardens, etc. We'll ship 1 Yellow, 1 White, and 1 Pink.

$1.00 Special No. 9

4 GLOXINIA Tubers

These imported tubers will produce a mass of trumpet-shaped blooms either indoors or in the garden. A wide selection of mixed colors.

$1.00 Special No. 19

50 GLADIOLI

A "Rainbow Mixture" of many outstanding varieties. The best of the large flowering varieties will be found in this choice mixture. Assorted colors.

$1.00 Special No. 10

6 DAHLIA Tubers

These are the large, decorative type. Six different colors are represented—all show varieties. One variety alone normally sells for the price asked for all six

$1.00 Special No. 11

3 PEONY Roots

Probably the most popular of all perennials. These large roots are produced by an expert. Assorted pink, red, and white.

$1.00 Special No. 20

12 CANNA Roots

Cannas are as exceptional for the beauty of their enormous leaves as for the striking colors of their large flower clusters. Assorted colors.

$1.00 Special No. 12

3 Hybrid AMARYLLIS Bulbs

The Mead Strain of Giant American Hybrids. They can be grown indoors or outdoors, but should be lifted in the Fall. Assorted shades.

$1.00 Special No. 13

2 BLEEDING HEART Roots

One of the earliest flowering perennials, the delicate pink, heart-shaped flowers are ideal for borders or rock gardens.

$1.00 Special No. 21

20 MONTBRETIA Bulbs

Miniature gladioli. Very sweet scented and free-flowering! Large florets on tall stems. Assorted colors.

$1.00 Special No. 22

MAIL COUPON TODAY—ORDER BY SPECIAL NUMBER

GROWERS EXCHANGE, INC.

24700 DRAKE ROAD
FARMINGTON, MICHIGAN

Enclosed find $_____ for which please send me the following specials:

☐ #1 ☐ #2 ☐ #3 ☐ #4 ☐ #5 ☐ #6 ☐ #7 ☐ #8 ☐ #9 ☐ #10 ☐ #11
☐ #12 ☐ #13 ☐ #14 ☐ #15 ☐ #16 ☐ #17 ☐ #18 ☐ #19 ☐ #20 ☐ #21 ☐ #22
☐ #23 ☐ #24 ☐ #25

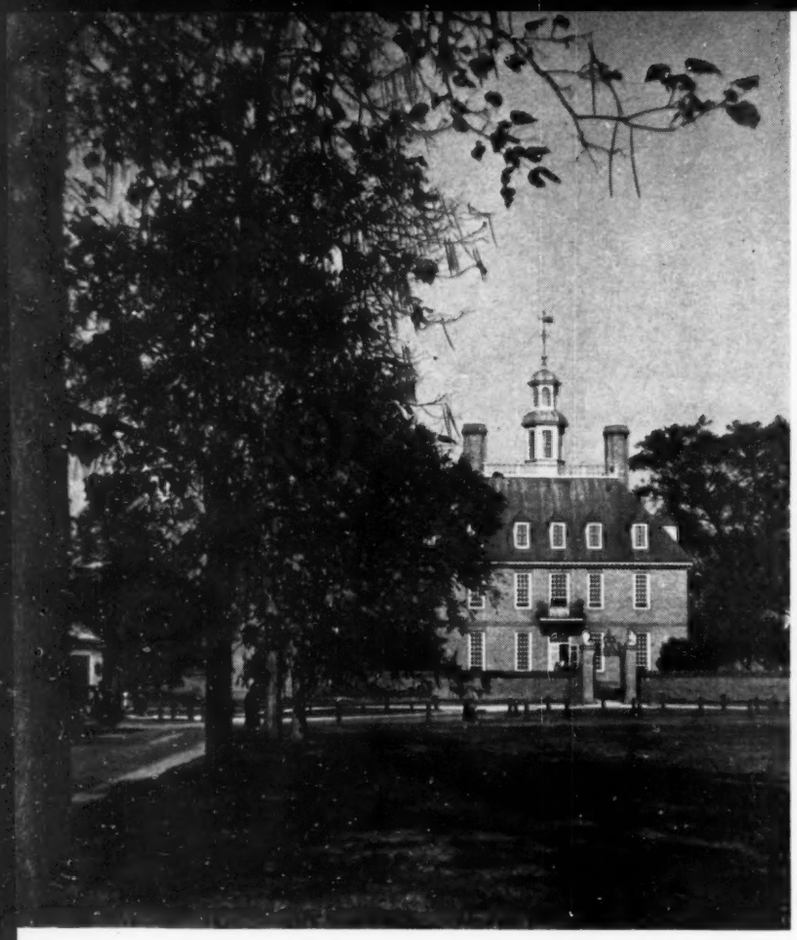
Remember, you can SAVE even more by ordering any 6 specials for only $5.00 postpaid, or any 12 specials for only $10.00 postpaid.

Please add 25c for postage and packing if order is under $5.00. All merchandise will be shipped at proper planting time. Sorry, NO C.O.D's.

NAME_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____



DON'T NEGLECT FOREGROUNDS when shooting Williamsburg. Foreground framing is good device to offset a photo's center of interest. Here trees lead eye to Governor's Palace, tie it to setting, add interest.

INCLUDE HUMAN INTEREST PICTURES. On your tours, take time out from garden photos to get such shots as above. Guard shows how cannon was fired 200 years ago.

take your camera to Williamsburg

by JAMES E. MAYS
PHOTO-JOURNALIST, COLONIAL WILLIAMSBURG

JAMES E. MAYS PHOTOS

GET GOOD DETAIL IN BACKGROUNDS. Add interest to foreground by choice of background details. *Above,* note church spire rising back of Repiton garden.

YOU CAN take excellent outdoor pictures with nothing more than a simple box camera. To prove it, take your camera along with you to the 1953 Garden Symposium in Williamsburg, Virginia, co-sponsored by Colonial Williamsburg, Inc., and FLOWER GROWER. (The dates, in case you've forgotten: first session—March 9 to 11; second session—March 18 to 20.) Intriguing picture possibilities abound there, and your photo record will be a treasured souvenir of your visit.

Here-and-now proof that the simplest box camera takes quite satisfactory pictures are the accompanying photos. These were made with a Brownie Hawkeye, which retails under $10.

If you already have a camera, check it thoroughly before you leave. Make sure it is clean and dust-free, that viewfinder, lens and shutter are operating properly. Examine the box itself for light leaks and shoot a test roll of film and examine the results. Then you'll be all set for trouble-free shooting once you are in the colonial city.

Use a good medium-speed panchromatic film for your Williamsburg shooting, particularly if you have a box camera. The shutter speeds on these cameras are fixed at about 1/30th of a second, and if you use a "fast" panchromatic film, your negatives are apt to be overexposed. Eastman Plus-X or Panatomic is a good choice and easily obtainable at your drugstore.

What subjects to photograph? There's no [SEE PAGE 26]

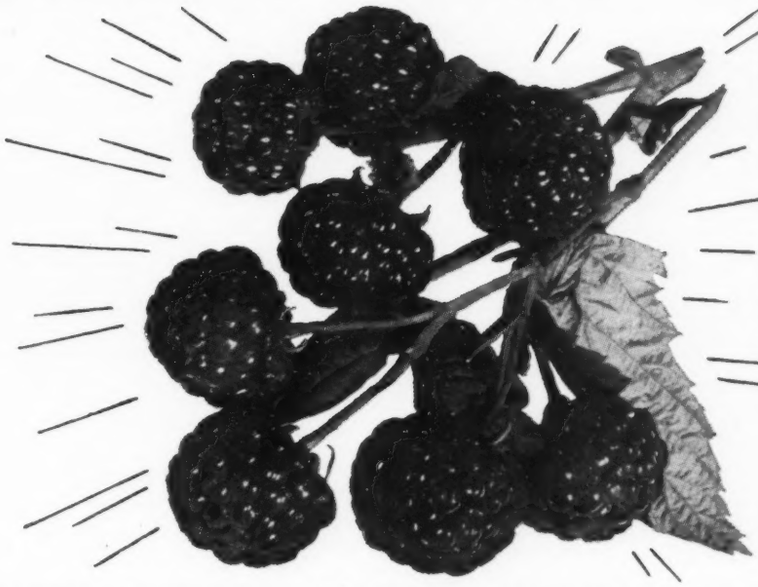
STERN'S PRESENTS **THE NEW MIRACLE**

3-SEASON RASPBERRY

WONDERFUL WITH CREAM

LUSCIOUS JAMS

FLAVORFUL PIES



PICK 'EM IN SPRING

PICK 'EM IN SUMMER

PICK 'EM IN FALL

IT'S STERN'S SWEET "SEPTEMBER" RASPBERRY —THE FIRST TRULY EVERBEARING RASPBERRY—

If you don't plant and pick these sensational new Stern's Sweet "September" Raspberries, you'll be missing the thrill of a lifetime! Imagine—your own fresh-picked, delicious rich red raspberries all season long! Not just one crop in the Spring—or just an Autumn crop—but all the berries you'll want—SPRING . . . SUMMER . . . and FALL! These new Stern's "miracle raspberries" were developed in Geneva for your mouth-watering enjoyment. Your family and guests will rave about their fresh firmness and flavor.

"Miracle Raspberries" from June thru November! Delicious Fruit 60 days after planting—Guaranteed

Stern's Sweet "September" starts to bear extremely early—often as early as June 20th in the New York City area. With the exception of a few weeks in August, they'll continue to bear right up until heavy freezing weather—sometimes as late as Christmas! You'll pick berries in September, fully thirty days before other Fall-bearing berries ripen. Most amazing—you'll pick basket after basket of "exhibition" fruit.

ATTENTION! FAR NORTHERN GARDENERS

Many gardeners, especially in Maine, Vermont and New Hampshire, have been searching for a SUPER-HARDY raspberry that will produce a big fall crop before the killing frosts of early October. Stern's new Sweet "September" offers the perfect answer. And Stern's guarantees your crop! You'll pick loads of delicious berries Spring, Summer and Fall—or your money back.

Firm, Juicy "flavor miracles"—will not crumble!

You've never really known how good raspberries can taste, until you enjoy Stern's firm, flavorful Sweet "September" berries fresh out of your own garden. Plants are vigorous and increase rapidly, even in coldest sections. YOU'LL PICK YOUR FIRST CROP THIS SPRING if you order now—enjoy delicious berries only 60 days after planting.

REMEMBER, STERN'S GUARANTEES YOUR SATISFACTION

Every plant guaranteed to produce luscious berries Spring, Summer and Fall, or your money back—you need not return plants!

USE COUPON • MAIL EARLY

STERN'S NURSERIES
Dept. G, Geneva, N. Y.

For delivery at proper planting time

Send your new SWEET "SEPTEMBER" RASPBERRIES that are unconditionally guaranteed to bear in Spring, Summer and Fall.

CHECK QUANTITY

☐ 5 for $3.75
☐ 10 for $6.50
☐ 25 for $15.00
POSTPAID

Enclosed is $_____

NAME _____

ADDRESS _____

TOWN _____ STATE _____

SUPPLY LIMITED—RUSH ORDER NOW

Reserve your plants for delivery at proper planting time in your section

QUICK CROP PLANTS—Ready to bear this Spring!

5 Quick Crop giant plants $3.75 Postpaid
10 Quick Crop giant plants $6.50 Postpaid
25 Quick Crop giant plants $15.00 Postpaid
Send check or money order.

STERN'S NURSERIES

Dept. G • Geneva, N. Y.

HARROLD'S PEDIGREED STRAIN

TUBEROUS BEGONIAS

American Bred and Grown

AMERICAN VARIETIES ARE SUPERIOR and the Harrold group is the most varied selection available in this country. Culture is made easy by our 17 page culture booklet that comes with each order. These tubers are all good blooming size (1¼ to 2 in.) and with good culture will give outstanding results. ORDER NOW! TODAY!

OUR MOST POPULAR

These are the most popular types and colors from the more than 100 varieties and colors we catalogue. See our catalog. It's free.

PRICE: Any of these 3 for $1.00; 6 for $1.75; 12 for $3.00; 25 for $5.00. Postpaid.

GIANT CAMELLIA DOUBLE: Largest flowered and most popular. Resemble huge double Camellias 3 to 10 in. across. Also some similar to roses and Peonies (not separate). BRILLIANT COLORS—Apricot, orange, pink, rose-pink, red, rose, salmon, scarlet, yellow & white, your choice.

GIANT CARNATION FLOWERED DOUBLE: Frilled and look much like giant Carnations. Not quite as large as Camellia.

CRISPA or SINGLE FRILLED: Our strain much improved in ruffling. Edges of each flower heavily ruffled and frilled.

HANGING BASKET TYPE: (Pendula Lloydii) All double. Plants of pendant habit well adapted for baskets, edgings of window boxes or in the rockery. Plants are always a mass of color.

COLOR SELECTION: For the three types just above, apricot, pink, red, salmon, scarlet, yellow & white, your choice.

NOVELTY TYPES

PRICE: Any of these 3 for $1.50; 6 for $2.85; 12 for $5.00; 25 for $9.50. Postpaid.

CRISTATA or CRESTED: A single fringed type with a tuff or pompon in the center of each petal. Very attractive. In mixed colors only.

MARGINATA: Of Crispa type. Medium ruffling. Colors, white with pink edge or salmon copper edged.

MARMORATA: Medium Camellia type mottled white on rose.

NARCISSAFLORA: A unique novelty resembling giant Daffodils. Prized as a pot plant.

PICOTTE DOUBLE: Large double Camellia type. Flowers are mostly two-tone with petal edges laced and bordered in different shades. Mostly in pastels but available only in mixture.

ROSEBUD DOUBLE: A striking type resembling rosebuds. Flowers medium size and in mixed colors only.

SPECKLED AND SPOTTED: Camellia type. Scarlet splashed with white.

EXOTIC MIXTURES: Unlabeled seedling crosses made from the above group of types. Will contain many interesting types and colors of much interest to the collecting hobbiest.

Remit With Order **No Stamps**
No C. O. D's.

HARROLD'S BEGONIA GROW

A compounded organic food for proper culture of Tuberous Begonias. Mixed with good garden soil and peat moss it makes a satisfactory, nourishing planting media for your tubers. Applied when setting in summer bed. Put up in convenient 12 tuber packages at 60¢; 50 tuber package $2.00; 100 tuber package $3.75 postpaid with instructions.

AMERICAN GROWN Begonias

TUBERS SEEDS PLANTS

WRITE FOR LIST...

HARROLD'S Box 29-F GRANTS PASS OREGON

African Violet Seed

1-A mixture, from many crosses of many named varieties. $1.00 a pkg. 11-E, from crosses of many varieties having girl type foliage. $2.00 a pkg. 6-D, Best doubles crossed on best singles. $2.00 for ½ pkg. Approximately 300 seeds to a pkg. Planting instructions with seed. You can get a blooming plant from seed as quickly as from a leaf.

Friendly Gardens, Box 5-K New Bedford, Pa.

IF YOU ARE INTERESTED IN

ORCHIDS

The Orchid Society is a helpful organization for anyone interested in Orchids. Dues are only $4 a year. Send for Free Pamphlet or better still 25¢ for sample copy of 48 p. magazine, The Orchid Digest.

ORCHID SOCIETY OF CALIFORNIA

697 Arlington Avenue Berkeley 7, California

For the home owner with a sense of beauty PLUS a sense of value!

5 distinguished varieties of CLIMBING ROSES!

Bring roses up to eye-level . . . *and higher!* Grow them on walls and trellises . . . on arbors and fences! Use them to screen and to decorate! Here are five *proven* varieties . . . choice specimen plants sold on our time-honored guarantee of satisfaction!

CLIMBING VANITY FAIR Exquisite shell-pink! ..... EACH **2.50**
CLIMBING SILVER MOON Frosty, luminous white! EACH **1.50**
PAUL'S SCARLET CLIMBER Reddest of reds! ..... EACH **1.50**
GOLDEN CLIMBER Brilliant buttercup yellow! ..... EACH **2.00**
CLIMBING TALISMAN Red and gold! ..... EACH **2.00**

Grow them separately or intertwine them for spectacular color effects.

SPECIAL COMBINATION VALUE!

ALL 5 FOR ONLY $8.00!

Custom-quality cannot be mass-produced! *We are not growers of the* MOST *roses, but of the* FINEST! Every rose bush we offer has been cultivated, nurtured and hand-selected by us, to make sure *that you get the strongest, most prolific rose plants grown anywhere!*

Shipping charges collect. Address Dept. FG3

Totty's MADISON N. J.

The little name with the big following!

1903 TOTTY'S GOLDEN JUBILEE 1953

Williamsburg

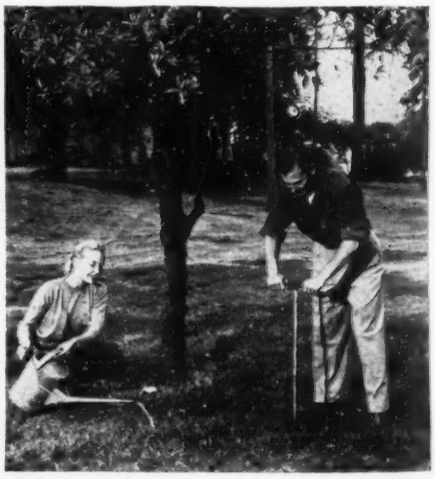
[FROM PAGE 24] limit. The choice is all yours. But the buildings and gardens you will tour, of course are a must. Look for interesting angles which show garden features you may want to copy in your own garden, and take both long shots and close-ups. You may also want to photograph the craft shops, costumed hostesses, colonial guardsmen and the beautiful old coaches, with their liveried drivers, clop-clopping up and down Williamsburg's tree-lined streets.

To round out your story, take pictures of the new friends and garden authorities you meet. These photos will add human interest to your collection.

After you get home and have your film developed, select the best shots and have them enlarged. Take the pictures to your next garden club meeting and sit back and enjoy the "oohs" and "ahhs."▶

New Water-Soluble Fertilizer

A new water-soluble fertilizer designed to minimize risk of leaf or grass burn is now on the market. Called Folium, this brand-new Monsanto product of 20-20-20 analysis is easily sprayed on grass, flowers, vegetables and trees with a hose with siphoning attachment, or it can be applied with sprinkling can or spray applicator. Root-feeding of trees with Folium is also effective.



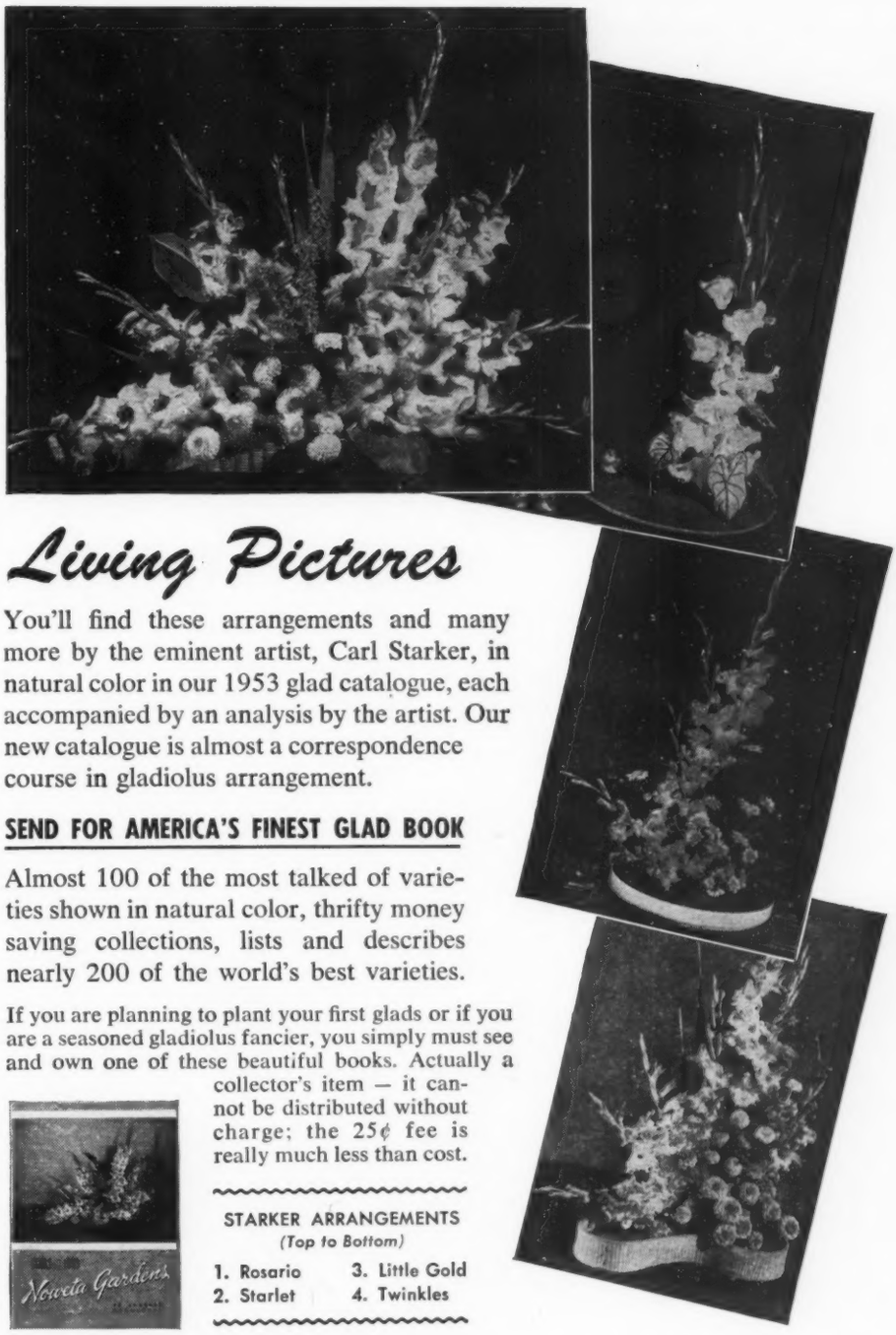
"FRIT" . . .

it's now available!

AGRICULTURAL FRIT, which was first described to the gardening public in the September FLOWER GROWER, will be available for the beginning of the 1953 planting season under the brand name "FTE." The letters stand for "fritted trace elements" and mean that this finely ground, glass-enamel substance called frit contains trace elements essential to plant growth. These elements are manganese, iron, zinc, copper, boron and molybdenum, and in this highly insoluble form they are made available to plants slowly by actual contact of the roots with the frit particles. They cannot injure plants by over-dosage, they do not leach out of the soil, and they are available to plants over an unusually wide pH range.

FTE is manufactured by the Ferro Corporation of Cleveland, Ohio, who developed the material, and is being packaged for home garden use by the DuPont Company of Wilmington, Delaware. It can be used for all crops, either alone as a source of essential trace elements or in conjunction with standard nitrogen - phosphorus - potash fertilizers. Full information on it can be obtained by writing to the Ferro Corp., Cleveland 5, Ohio, and asking for their new bulletin on FTE.

The camellias *at left* received two applications of FTE, agricultural frit, while the control plants, *right*, were not treated. Note the more vigorous growth of the plants that were treated with the frit.



Living Pictures

You'll find these arrangements and many more by the eminent artist, Carl Starker, in natural color in our 1953 glad catalogue, each accompanied by an analysis by the artist. Our new catalogue is almost a correspondence course in gladiolus arrangement.

SEND FOR AMERICA'S FINEST GLAD BOOK

Almost 100 of the most talked of varieties shown in natural color, thrifty money saving collections, lists and describes nearly 200 of the world's best varieties.

If you are planning to plant your first glads or if you are a seasoned gladiolus fancier, you simply must see and own one of these beautiful books. Actually a collector's item — it cannot be distributed without charge; the 25¢ fee is really much less than cost.

STARKER ARRANGEMENTS
(Top to Bottom)

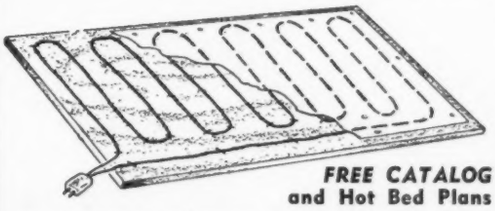
1. Rosario
2. Starlet
3. Little Gold
4. Twinkles

NOWETA Gardens Box FG St. Charles, Minn. CANADIAN ADDRESS: Box 204, Burlington, Ontario

G-Q

ELECTRIC SEED BED HEATERS

Use them to heat your winter window sill garden, miniature greenhouse, hot beds, cold frames and aquariums.



***FREE CATALOG* and Hot Bed Plans**

Heating cables, Gro-Quicker plant food, plastic markers, wick feeders, garden accessories. Valuable information on African Violet culture and growing racks.

Determine number of square feet to be heated and select cables you need. One thermostat will control several cables. Instructions with order.

A6	15	watts	1½	sq	ft	$1.00
B12	30	"	3	"	"	1.80
M26	60	"	6	"	"	2.80
P40	100	"	9	"	"	2.80
J56	140	"	14	"	"	3.00
S112	280	"	28	"	"	6.00

J40A for single sash bed or 20 sq. ft. has J40 cable & AT air thermo. **$6.75**

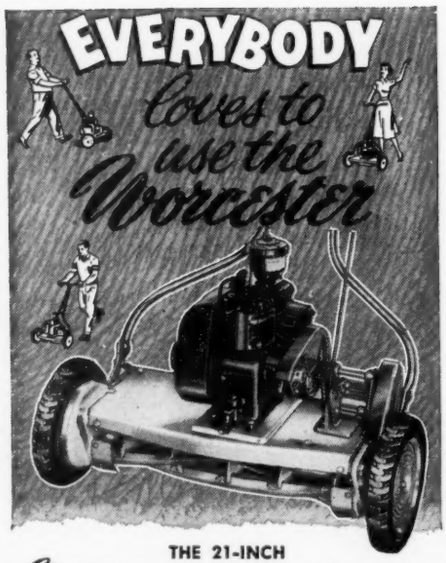
S80A for double sash bed or 40 sq. ft. has S80 cable & AT air thermo. **9.00**

AT thermostat, will handle 1,000 watts, $4.50

Above Prices Postpaid

We carry a complete range of cables and thermostats from $1.00 size to large, heavy duty cables for large, commercial installations.

GRO-QUICK SALES 10342 Lanark Dept. 25 Detroit 24, Mich.



THE 21-INCH
Worcester SHEAR MASTER* Model 900

*Also made in 18" Model 750, the Worcester POWER MASTER**

Kids and grownups—male and female—they all get a thrill out of a Worcester power mower.

MOTHER loves its streamlined beauty . . . its two-tone baked enamel finish . . . its effortless, smooth-flowing power . . . the shock-absorbing, free-floating handle that adjusts to any person's height ...the way it stores upright in small space.

DAD admires the precision workmanship, simple design and rugged construction—results of Worcester's 50-year mower-making experience. He appreciates such things as finger-tip controls, "no-clog" grass guards, conveniently located oil cups, easy cutting-height adjustment, sealed Timken roller bearings, protected chain drive, Briggs & Stratton engine and exclusive "Sta-Temp" blades that stay sharp extra long.

AND JUNIOR! Since Dad made him responsible for taking care of the Worcester and keeping the lawn in trim, he's been proud as a peacock. And the lawn is the envy of the neighborhood.

***Valuable* hints on lawn care!**

***Details* on the complete Worcester line, which includes, besides those mentioned above, a powerful 20" rotary mower, the Worcester ROTOR MASTER*, Model 810; an efficient 18" reel-type electric mower, the Worcester DYNA MASTER, Model 700; 4 fine hand mowers.** *Reg. U.S. Pat. Off.

JUST WRITE:
Worcester
LAWN MOWER COMPANY
Division of Savage Arms Corporation
73 Broadway, Chicopee Falls, Mass.

Soil-Working Power Tools 1953 Models

Engine and rotor are controlled separately on a Rotavator Bantam.

Non-winding, self-sharpening tines on the M-E Mustang do a big job.

Although light, Ariens Yardster will till the soil to a depth of 7 inches.

[CONTINUED ON PAGE 30]

Now! Have FINER Flowers and Vegetables

FROST CAN'T HARM PLANTS
Flowers and Vegetables 3 WEEKS EARLIER!

Give your favorite flowers and vegetables an *earlier* SAFE start! HOTKAPS provide individual HOTHOUSES for seedlings and young plants, give positive protection against frost, storms, sun, insects.

Hotkaps*

BIG GARDEN PKG. of 25 only 95c–Setter Free
ATTENTION COMMERCIAL GROWERS! Larger Pkgs. of 100, 250, 1000

Handy Speedy **PLANT TIE**

Strong, dark green "invisible" tapes with wire reinforcing — protect stems, speedily and permanently support annuals, perennials, vines, shrubs, and vegetables.

TWIST-EMS*

Box of 200, 4-inch size, 25¢	Box of 100, 8-inch size, 25¢
Box of 100, 16-inch size, 50¢	Pkg. of 50, 8-inch size, 15¢
Pkg. of 35, 8-inch size, 10¢	250 ft. continuous roll, $1

***New Weatherized* TRELLIS NETTING**

Ideal support for SWEET PEAS, GARDEN PEAS, POLE BEANS, CUCUMBERS, TOMATOES. Hung in 5 minutes. Doesn't rot like string, nor burn tendrils like wire.

TRAIN-ETTS*

60-inch x 72-inch, 65¢ 60-inch x 96-inch, 85¢ 60-inch x 180-inch, $1.25

SCARE *Birds and Animals Away*

Amazing protection for newly planted seeds, berries, tender seedlings, fruit trees, etc. Made of shining aluminum, FLYING DISKS spin and whirl madly in all directions—give blinding reflections and weird jingling, crackling sounds—to scare birds and animals away. Easily strung across area to be protected—or from branches of fruit trees and vines.

10 FLYING DISKS with complete instructions, only 25¢

FLYING DISK

*T. M. REG. BUY by Mail from your DEALER or AT HIS STORE

AT YOUR **GARDEN DEALER**

*Something Beautiful and Different

for Your Summer Flower Garden This Year...

*DAYLILIES and JAPANESE IRIS...
Ideal Garden Companions for Midsummer Beauty

HIGO IRIS—Finest Strain of Japanese Iris

Spectacular blooms up to dinner plate size in velvety purples from amaranth to deepest violet shades, refreshing blues from Light Wedgwood to Navy Blues, soft pink to rosy orchid shades and lavenders from palest mauve to deepest lilac. Purest whites and whites with contrasting blue or purple penciling.

DAYLILIES

America's Most Promising Perennial and the Perfect Flowering Companion for Japanese Iris

There are no yellow Japanese Iris. But many Daylilies in innumerable yellow tones from cream to deepest orange as well as pink, red and brown shades bloom with the Japanese iris in June and July. By combining the two in your spring planting program you will treat yourself to a most delightful garden picture during the midsummer months. Our combination offer is simply a "natural" for maximum garden beauty. And remember that Daylilies and Japanese iris are long life perennials that will increase in size and flowers for many years.

GIANT HIGO IRIS

These Higo iris are not small single divisions but big husky seedlings full of vitality. Every plant will consist of several fans heavily rooted and will bloom this year with proper care. Height will average 3 to 3½ feet once established.

6 Heavy plants all different in the various colors described above....$5.00
12 Heavy plants all different in the various colors described above....$8.95

SPECIAL COMBINATION OFFERS

Any 7 Daylilies (Your Selection).....$ 3.95
And 6 Giant Higo Iris (Our Selection).....$ 5.00
SPECIAL PRICE BOTH COLLECTIONS.....$ 8.00

•

1 each of all 15 Daylily Varieties.....$ 7.50
And 12 Giant Higo Iris (Our Selection).....$ 8.95
SPECIAL PRICE BOTH COLLECTIONS.....$15.00

Orders will be filled promptly as received and shipments will continue throughout March and April. Every order shipped postpaid.

DAYLILY OR IRIS COLLECTIONS MAY BE ORDERED SEPARATELY

Order direct from this ad. These special collections & prices do not appear elsewhere.

COMPANION DAYLILY COLLECTION

15 Carefully Selected Varieties For Planting With The Giant Higo Iris. Husky 1 year old clumps that will produce lots of flowers this year.

MOONRAY. Deep creamy yellow with mahogany halo. 3 ft.
RADIANT. One of the finest pure orange varieties. 3½ ft.
PINK CHARM. Recurved rosy pink. 4 ft.
CRESSIDA. Tall saffron yellow. 4 ft.
BARONET. One of the best mahogany reds. 2½ ft.
D. D. WYMAN. Huge deep yellow with red center. 3 ft.
HANKOW. Lovely salmon with red center. 4 ft.
CALYPSO. Large sparkling lemon yellow. 3½ ft.
RAJAH. Glowing copper with scarlet center. 3 ft.
J. A. CRAWFORD. Immense early apricot yellow. 3½ ft.
VULCAN. Deepest maroon and yellow. 2½ ft.
ALADDIN. Deep yellow with garnet center. 3½ ft.
HONEY REDHEAD. Brilliant copper red and yellow. 3 ft.
MANDARIN. Big spidery lemon yellow. 3½ ft.
ANNA BETSCHER. Dark orange shaded bronze. 3 ft.

Any 7 your selection for.....$3.95
All 15 varieties for.....$7.50

Walter Marx Gardens

Box 38-F **Boring, Oregon**

25¢ will bring you our big 64 page Annual catalog beautifully illustrated in color. We offer you the World's Most Comprehensive Iris Collection. Finest Collection of Daylilies, Oriental Poppies and other choice perennials.

NEW!
NEW!

Bonide Perfects an All-Purpose SPRAY

FOR

SHADE TREES & SHRUBS

OVOTOX CONTROLS:

SPIDER MITES — All Species
LEAF MINERS — All Stages
APHIDS — All Species
SCALE CRAWLERS, BEETLES
DEFOLIATING WORMS,
Common Diseases

Insure Beautiful Shrubs & Trees—Prevent Distorted, Deformed Growths!

Ideal for the "home gardener" . . . Ovotox is a concentrated wettable powder ready for instant use. *Outstanding efficiency!* It will pay you to try Ovotox—get a trial package from your dealer or write Bonide. 1-Lb. can makes 24 gal. of spray. To keep dogs and rabbits off—use Dogzix!

Get
TREE-TOX

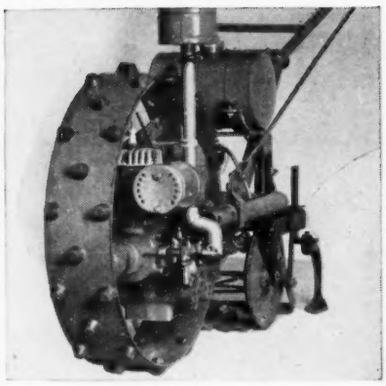
For Fruit You Can Eat

FROM YOUR

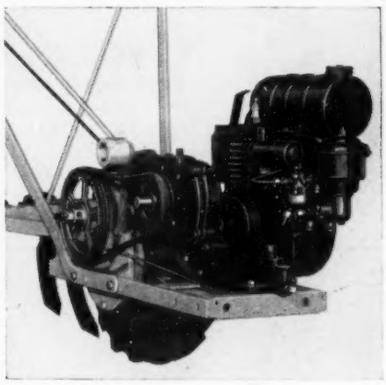
FRUIT TREES & BUSHES

Tree-Tox prevents Black Spot and worms. Made for the "backyard" gardener—no mussy mixing! Can be used as a dust or spray . . . micronized for outstanding efficiency . . . easy to use. Economical—1-lb. can makes 27 gallons of spray. For Scale and Scab use Dormatox, a dormant spray oil.

BONIDE CHEMICAL CO.
Garden Specialists for 26 Years!
UTICA 4, NEW YORK



The one-wheeled Viking Suburbanite shown with cultivator attachment.



Narrow rows present no problem for the new one-wheeled Junior Chief.

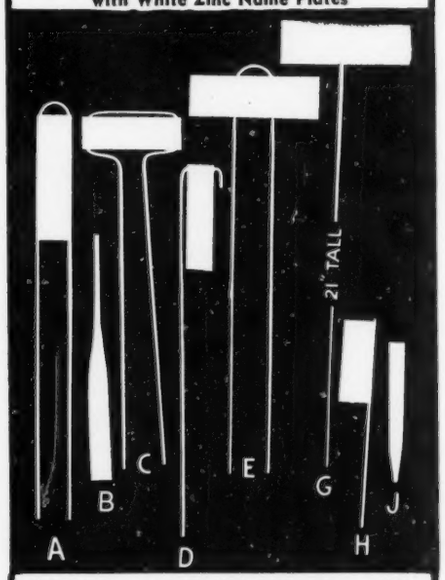
Power steering makes light work of turning the all-gear-driven Red-E.

The Red Flyer tractor is available with either a 2 or 3 H.P. engine.

Galvanized Steel

GARDEN MARKERS

with White Zinc Name Plates



KNOW your FLOWERS. Mark with a pencil. Names stay on. Enjoy your garden more.
ORDER NOW WHILE AVAILABLE

8 DIFFERENT STYLES

Prepaid: Add 10% west of the Rocky Mts.

A—12 INCH HAIR PIN TYPE

3-inch lock-rim. Name Plate which can be re placed in a jiffy. Look neat in the garden, nice for Iris and Roses.

Doz. 60¢; 20 for $1.00; 100 for $3.50
Extra lock-rim name plates 1½¢ each

B—7 INCH LABELS WHITE ZINC

Permanently mark trees, shrubs and plants. Pencil marks stay through rain and snow.

Prepaid 25 for 40¢; 100 for $1.00; 500 for $4.00

C—GARDEN MARKER

9 inch steel wire standards and shielded WHITE-ZINC NAME PLATE which may be marked on both sides. You will like this improved marker.

Prepaid Doz. 60¢; 20 for $1.00; 100 for $3.50
Extra Zinc Plates Without Wire 1¢ Each

D—11" SWINGING LABEL

3-inch Zinc Name Tab secured to 11 inch STEEL Standard, adjustable, nice for tulips.

Doz. 40¢; 30 for $1.00; 100 for $2.50
Replacement Tags $1.50 per 100
Special Weatherproof Pencil 10¢

E—11½" OK ROSE MARKER

Name plate has wide flanges with four accurately spaced holes thru which stiff STEEL standards freely slide up over the tilt into secure position. A new plate can be put on easily. The price is a little higher for this better marker but worth it.

Doz. 70¢; 18 for $1.00; 100 for $4.00
Name Plates Without Wire 2¢ Each

G—21" TALL for home garden easy to read

Same name plate as OK ROSE (Replaceable). Single Wire Staff. For Tulips, Glads, Iris, Day Lilies, Tea Roses, showing well above foliage, no samples.

Prepaid 25 for $1.50; 100 for $4.80

H—6" POT LABEL for Rock Gardens

USEFUL IN THE GREENHOUSE

"Handy as a pocket in a shirt." Penciled names defy moisture, heat and weather. Neat, Modest and Durable. Strong Steel wire sticker. White Zinc name plate. Low cost permits generous use.

Prepaid 40 for $1; 100 for $2.20
Extra name plates not available

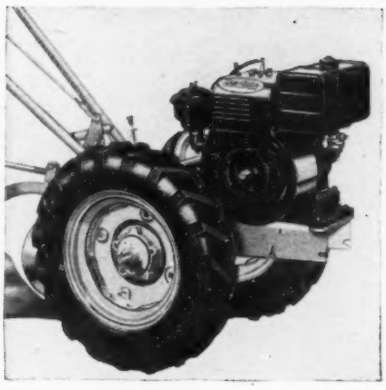
J—4" VIOLET LABEL

Made for African Violets and other small house plants. Useful to the hybridizers for labeling cuttings. Pointed WHITE ZINC strip 7/16x4".

2 Doz. 25¢ 100, 80¢ 1000, $5

TRIAL KIT To acquaint new customers with our markers and labels we prepay Three each of A, C, D, E, H, and 25B together with a weatherproof pencil all for $1.00.

EVERLASTING LABEL CO.
Box 93, PAW PAW, MICH.



Five forward speeds make a Simplicity Model M most adaptable.

M-E Model B16 is a tiller for heavy work of garden-soil preparation.

The Page Bantam one-wheeled tractor is designed for smaller gardens.

The Bolens Power-Ho deluxe 2½ H.P. tractor features variable speeds.

Here are the newest things in Iris—

●The newest Hall FLAMINGO PINKS and GOLDEN APRICOTS...a startling new Kleinsorge TOAST-and-MOLASSES BROWN, and two-score other new additions! Striking flower arrangements, lovely garden scenes, money-saving collections. Almost 100 varieties in natural Kodachrome. The 25c fee can be deducted from your first order.

SEND 25c FOR AMERICA'S FINEST IRIS BOOK...

48 pages, all in color. Lists and describes 300 modern varieties. Send 25c for your copy today!

Cooley's GARDENS

Box F • Silverton, Oregon

HOW TO Plant VITAL FRIENDLY BENEFICIAL Bacteria

IN YOUR GARDEN and LAWN

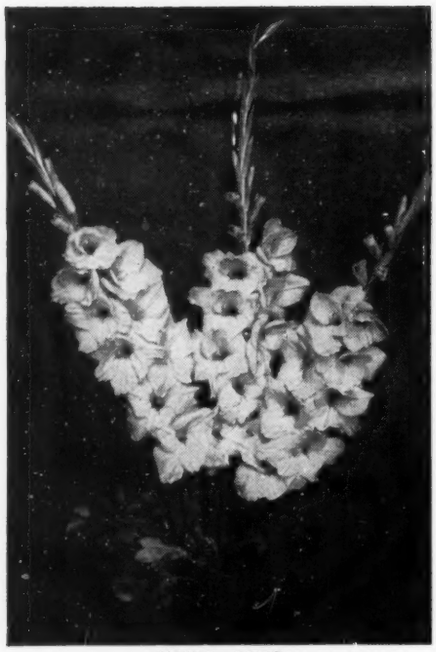
ActivO teems with billions of Nature's own vital organisms without which no soil is productive. Use it in all soils and mulches and with plant food. It **ENERGIZES** and **conditions.** Makes fertilizer more effective while **conserving** it. See the amazing difference in foliage color and health—in better blooming and fruiting. A little goes so far! $2.59 size energizes up to 2400 lbs. of mulches, soils, dressings, etc.

ACTIVO
Activates Compost
Energizes Soils

BENSON-MACLEAN
Bridgeton 26, Indiana

Try This!

Plant some amplified Nature with your seed. Learn the meaning of real **GROW POWER.** Sprinkle **ActivO** along in the rows—1 lb. for 100-300 sq. ft. OR apply **ActivO** to seed as if it were a seed treatment or inoculant. Use it with ALL kinds of seed—by all means with POTATOES. Growers say **Active** means not only more and bigger spuds but also aids in germination. Get your season's supply of **ActivO** now. At all progressive dealers. $1 to $19.95.



KING SIZE

Sensational new giant over 6 feet tall opens 8 to 10 huge 6 to 7" florets of soft pink with a bright Carmine Throat. The world's largest gladiolas.

Large	**$5.00 each**
Medium	**4.00 "**
Small	**3.00 "**

GIANT OF GIANTS

KING SIZE

Tremendous response to our February offering of King Size has prompted us to list it again. Don't miss King Size. 1 bulb purchased in 1953 and carefully propagated will give you 3000 more in 1955.

A Few Super Values in Collections. Many more appear in my 1953 Catalogue.

#1 ALL SEASON COLLECTION— 100 assorted large bulbs in about 40 fine varieties in a wide color range for $6.00. The finest unlabelled collection available at the price.
50 for $3.00
With each 100 collection we give extra a labelled bulb worth $1.00.

#2 BEAUTY COLLECTION labelled. 2 large bulbs each of 12 varieties selected for ruffling — fluting and sheer beauty. **Value $4.10 for $3.00**

#4 FANMAKER COLLECTION labelled. 27 large bulbs of 15 varieties selected to please the average person. They are good. **Value $4.35 for $3.25**

#6 EXHIBITION COLLECTION labelled. 23 large bulbs in 15 varieties, all capable of Grand Champion performances. Many blooms open at a time.
Value $4.80 for $3.50

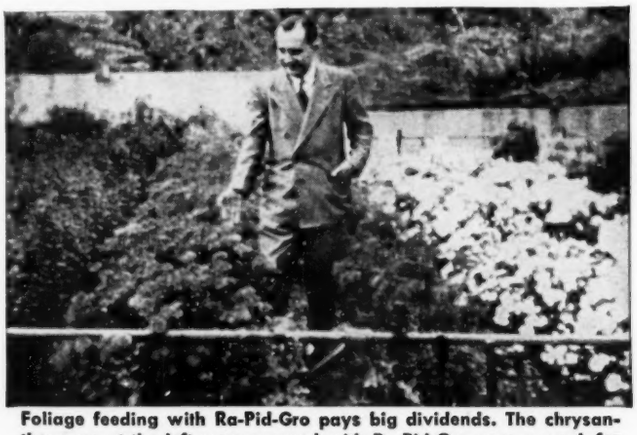
#10 GIANT COLLECTION labelled. 22 large bulbs in 12 varieties that produce 5½ to 6" blooms. **Value $4.80 for $3.75**

MANY OTHER COLLECTIONS IN MY CATALOG

Send for my 80 page catalog which lists the largest (over 400) number of up to date varieties in any catalog. Many pictures in color. We comb the world for outstanding new introductions. Catalog sent for 10¢ coin or stamps, to cover cost of mailing.

CHAMPLAIN VIEW GARDENS, ELMER GOVE, BOX 45, BURLINGTON, VERMONT

Guaranteed to Produce Amazing Results on Lawns, Trees, Shrubs, Flowers, Plants and Vegetables



Foliage feeding with Ra-Pid-Gro pays big dividends. The chrysanthemums at the left were sprayed with Ra-Pid-Gro once a week for 5 weeks. The row at the right was not fed Ra-Pid-Gro.

use

RA·PID·GRO

"THE MIRACLE PLANT FOOD"

"Ra-Pid-Gro is a *complete* plant food containing nitrogen (23%), phosphoric acid (21%), and potash (17%), plus all essential minor elements, Vitamin B_1 and B_2 and hormones." *It feeds anything that grows.*

Easy to use, dissolves instantly in water. Safe, odorless, and you cannot overfeed with it.

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Ra-Pid-Gro has revolutionized foliage feeding. Now authorities admit that, sprayed on foliage, it is instantly absorbed into the sap stream and travels throughout the plant, even to the tiny extreme roots.

PRICES	
1 lb.	$1.25
2 lbs.	2.35
5 lbs.	4.50
10 lbs.	8.75
(Analysis: 23-21-17)	

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DANSVILLE, N. Y.
Buy RA-PID-GRO from your nurseryman or favorite store

First with the Latest and the Best

New African Violets

At last the Pink that surpasses ***ALL PINKS***

ALL AGLOW

Luminous Coral Pink with Red-rimmed eye. Gorgeous, large cupped blossoms on tall strong stems. Splendid and vigorous bloomer. Luscious forest-green "girl" foliage—deep rose undercoating.

FANTASY GIRL

The prettiest "girl" in lavender with deep purple markings. Everchanging—No Two of its big cupped blossoms alike. Easy to grow—quick to bloom.

ORDER NOW FOR SHIPPING AS SOON AS WEATHER PERMITS.

Each of these truly exquisite novelties:
$2.50 or Three for $6.50
Add 50¢ for shipping per order.
FREE PRICE LIST.

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PENNSYLVANIA LAWN MOWER USERS REPORT

Long Life, Good Service

They also like PENNSYLVANIA'S ease of operation ...7 key features

21" Deluxe

• When you want to know about power mowers, go to the man (*lucky fellow!*) who walks behind a PENNSYLVANIA.

People who own a PENNSYLVANIA like the easy way it cuts the grass. They like its good looks . . . the way "it holds itself down" so one run-over makes the lawn look smooth and velvety.

Best of all they like the way a PENNSYLVANIA keeps on doing what it's supposed to do—year after year. It offers you long life, good service and low upkeep. It takes a lot of sweat out of cutting the grass.

How to Choose the Right Grass-Cutter . . . Either Power or Hand

Decide first whether you should buy a hand or power mower. Our informative free folder (see below) will help you decide. Then decide about the width of cut (free folder helps here, too).

PENNSYLVANIA Power Mowers offer seven advantages: (1) Easy finger-tip control of throttle and clutch. (2) Full-tempered, double ground, hi-carbon blades. (3) Tested design for ease of maintenance. (4) Easy adjustment for height of cut. (5) Triple-A ball bearings. (6) New grass stripper, to keep long grass from moving parts. (7) Briggs & Stratton engine on the large 21-inch size.

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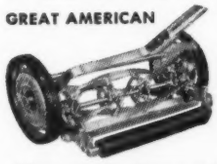
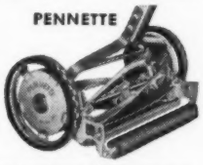


PENNETTE



Two of six Pennsylvania hand mowers

Power or hand—be *sure* it's PENNSYLVANIA!

Write for free folder *How to Grow a Beautiful Lawn.* American Chain and Cable Company, Inc., Bridgeport, Conn.

Power is applied directly to tines in the Choremaster rotary tiller.

Fine seed beds can be prepared in a jiffy with a 2 H.P. Garden Maker.

Pivoted tool control makes the one-wheeled Handi-Ho easy to handle.

Any tough organic matter is quickly shredded in a portable W-W grinder.

FOR THE FIRST TIME

a world-famous plant expert tells simply, specifically

HOW YOU CAN USE THE NEW WONDER DRUGS TO TRANSFORM YOUR GARDEN

DR. P. P. PIRONE

IF you have been reading about all the new "wonder drugs" that are transforming garden techniques, perhaps you share the somewhat dazed reaction of most garden-owners we know. To wit: *"This sounds great, but how does a fellow with no science background take advantage of it? How do I choose among all the new discoveries? Where do I buy the stuff? And just how do I use it in my garden?"*

Clear, authoritative explanation

At last the answers to these questions have been set down in plain or common garden English—and by the leading expert in the field: Dr. P. P. Pirone, world famous Plant Pathologist of the New York Botanical Gardens — the man whose word is final authority on thousands of garden problems here and abroad. Dr. Pirone has been besieged with letters from Sunday gardeners as well as big-time planters asking about the new methods. Using these as a basis, he has written MODERN GARDENING (380 pages). It is the first complete, authoritative, simple and specific guide to the use of the latest scientific advances (the book even gives a quick report on Krilium!) in your garden.

You get the latest word!

Dr. Pirone's easy-to-follow manual makes you the expert on the newest techniques. Simple charts tell what's best in sprays, dusts, fertilizers; which you need for your specific problem; what trade names to ask for; how to mix your own formulas; how and when to apply them.

How to transform your garden

With this book you learn new ways to feed plants through their leaves for exquisite blooms and rapid growth; how to create a new lawn first try; renovate an old one; how to end plant diseases overnight; new chemicals that *speed* the growth of flowers, shrubs, trees, vegetables; *arrest* growth of unruly hedges.

Save time, money, fatigue

You'll find up-to-the-minute solutions for literally every gardening crisis and problem: care and feeding of soil, new ways to get rid of insects and weeds *without harming plants* — and hundreds of other enormously helpful money-saving, time-saving, back-saving new short cuts to a superb garden. NOTE: Special Question and Answer Section gives specific replies to questions asked of Dr. Pirone by perplexed gardeners all over the country.

SEND NO MONEY

Whether you are an experienced gardener or a beginner, we believe Dr. Pirone's MODERN GARDENING will prove to be one of the most important acquisitions you ever made for your garden. Send for it today. If you are not convinced that it will save you many times its low price of $3.50, return it within two weeks for refund. Use coupon now.

Simon and Schuster, Inc., Dept. FG, 630 Fifth Avenue, New York 20, N. Y.

Please send me "Modern Gardening" for 14 days' trial. I will pay postman only $3.50 plus C.O.D. charges. If not completely satisfied I may return the book within two weeks for refund of my $3.50.

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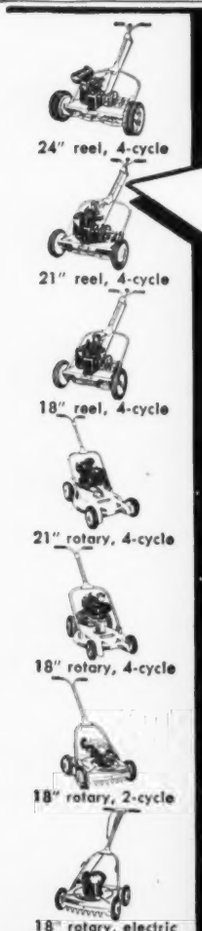
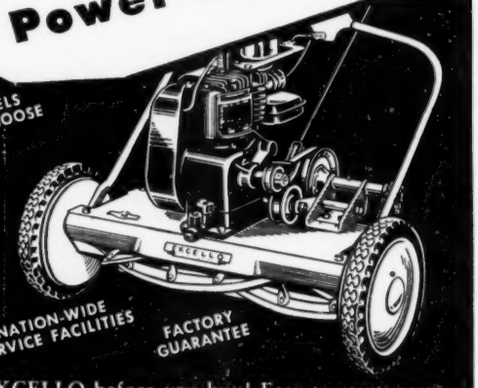
A Style and Size for Every Need at a Price You'll Gladly Pay!



trouble-free
EXCELLO
Power Mowers



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LIGHT-WEIGHT AND HEAVY DUTY DESIGNS
EVERY MODEL BUDGET PRICED
ALL MOWERS PRECISION BUILT
NATION-WIDE SERVICE FACILITIES
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Be sure and see EXCELLO before you buy! Easy to start, easy to run! Heavy duty Briggs & Stratton engines! Timken Bearings! Crucible steel reel blades! Positive action clutch! Reel and rotary, gasoline and electric models. Made only of finest quality materials throughout by skilled craftsmen for long, trouble-free service! **"It's a promise,"** from . . .

EXCELLO—Caretakers of the Nation's Lawns

HEINEKE & COMPANY
SINCE 1902 SPRINGFIELD, ILLINOIS

Report on Red Rich

by JULIE BEDIER (N. Y.)

MAURICE M. FINK, JR.

"A great many Red Rich berries were huge double-barreled tidbits as big as eggs."

In May 1951, I ordered 25 plants of the new Red Rich strawberry for $5.00. Since my budget was limited, I did not buy the more expensive potted plants.

Before the plants arrived I had their bed prepared. I had only one place to put my strawberries—a small plot, 10 × 30 feet, long grown up in grass and weeds. I dug up the weedy growth and carted the leaves and roots away to my compost heap. The soil is rather a stiff clay, not too fertile. After I had the ground somewhat dug and raked, I covered it to a depth of 6 inches or more with dead leaves from our numerous trees. Mixed with the leaves were about two bushels of poultry manure. I left this mulch to settle while I waited for my order.

At last the strawberry plants came, in good condition after the rather long trip. I had however bought naked root plants, and it was rather late in May. It just happened that we had a hot dry spell about that time. I got the husky looking plants into the ground at once, watered them well, and that was about all.

However, the rains arrived, and in a short time about a dozen plants began to put out really handsome large leaves. By midsummer, they were sending out runners, and forming a few blossoms and berries. Most of the berries were small, but there was an occasional huge dark red one. However, no more than a few saucers of berries appeared that first summer.

The directions told me that I should pinch off all runners after they formed one new plant. Since I am a busy person, I could not spend time pulling

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- Famous Natural Bridge
- Gunston Hall—Home of George Mason
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in VIRGINIA

APRIL 25th thru MAY 2nd

"No place on earth" will you find lovelier gardens than in Virginia in the Springtime. It's the time when hillsides burst with color and valleys are sweet with apple blossoms. It's the time when Virginia holds "open house" and gives you the keys to visit many historic old homes in colorful settings of magnificent gardens.

DEPARTMENT OF
CONSERVATION AND DEVELOPMENT
Room 879, 914 Capitol St.
Richmond 19, Virginia

WE RECOMMEND

NEW SEEDLESS GRAPE

INTERLAKEN ..a wonderful new seedless grape. Amber colored berries are crisp, solid, sweet and can be eaten whole. Delicious tangy flavor. Ripens about Aug. 15. Vigorous and hardy.

$1.75 each postpaid 2 FOR $3.25

CUSHION 'MUMS

Provide a spot of glorious color from late August 'till frost. Asstd. colors—bronze, pink, red, yellow

choice plants 5 for $1 postpaid

DWARF FRUIT TREES

Produce lots of full size, top quality fruit in small space. Bear second year after planting. Our trees are budded on imported malling root stock for extra vigor. APPLES: Cortland, Double Red Delicious, Red McIntosh, Yellow Delicious. PEARS: Bartlett, Clapp's Favorite, Duchess, Seckel. Plant two varieties for cross pollination.

2 YR. 3-4 FT. TREES $3.25 each
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KELLY BROS. NURSERIES, INC.
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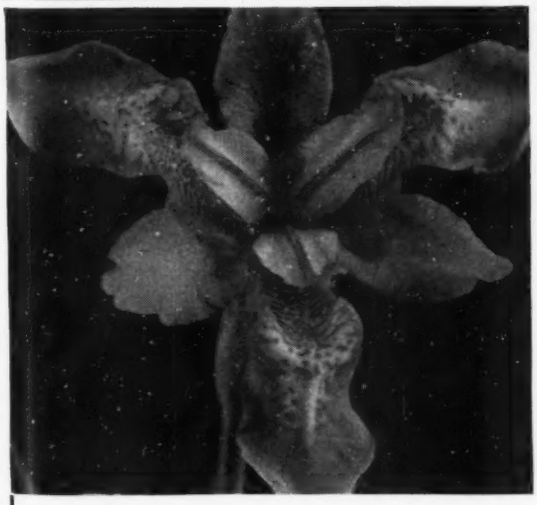

VESPER IRIS (Dichotoma)

ORDER NOW FOR BLOOM THIS SUMMER

The Vesper Iris blooms longer, produces more blossoms and has better branching than any other Iris. During the night the flowers twist into graceful spirals and drop off, so the beauty of the jewel-like blooms is never marred by faded blossoms.

Colorful and Well Branched • Hardy and Easy to Grow

At three o'clock in the afternoon the myriads of buds of the Vesper Iris open. The blossoms vary in color, including lavender, pale blue, and claret, with markings of orange, mahogany or tyrian on the falls. The two-inch flowers are perfectly spaced on slender, well-branched stalks which grow three to four feet tall. A single clump may display a hundred or more flowers a day for more than a month.

The Vesper Iris will thrive in half or full sun, stony, sandy or rich, heavy soil. It endures intense heat and prolonged drouth and blooms during the hot, dry days of July, August and September when flowers are scarce.

5 *Colorful* **Vesper Iris** *prepaid* **$1.95**

Jewel-like Blossoms on Graceful Stalks

The blossoms of the Vesper Iris are so beautifully fashioned that they have jewel-like beauty impossible to describe. From a little distance they give the illusion of gorgeous butterflies at rest, their graceful wings outstretched. The arrangement of the flowers is such that an artist could not place them better for a well-composed picture. Although a clump may display 200 blossoms at one time, the candelabra-like branching eliminates unsightly bunching, in fact, each bloom appears to best advantage.

Plant Now For Bloom This Summer

Order now and enjoy the beautiful Vesper Iris this summer. Shipment will be made at the right time to insure a good crop of flowers this year.

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BEDFORD, MICHIGAN

Check box for your free Iris color catalog ☐

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Please send.....Vesper Iris collections at $1.95 each

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Guaranteed

WATER LILIES

With outdoor living so popular, every garden needs a pool. That means water lilies. No finer lilies from any source. Tricker's are guaranteed to grow. Tricker has been the leader in water lily culture for over 50 years.

Besides water lilies, Tricker furnishes shallow water and bog plants, floating plants, Egyptian Lotus, oxygenating plants, pool accessories, gold and fancy fishes, fish foods and remedies. Buy all from the same source, and save.

Beautiful New
1953 CATALOG NOW READY!

FREE Beautifully Illustrated. Tells how to succeed easily with aquatic plants, fishes. Low prices.

Wm. TRICKER, INC.
3315 Brookside Ave., Saddle River, N. J.
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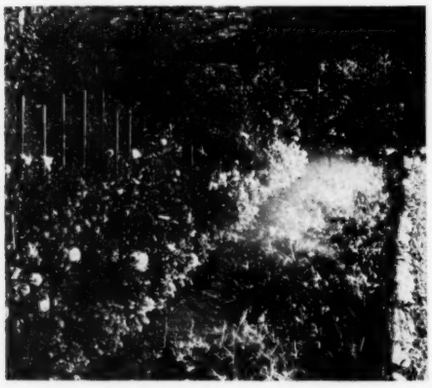

SPRINKLE FLOWERS

The correct way

End sprinkling troubles in full grown flower beds. Eliminate uneven coverage—puddles and dry spots. Cut down water bills caused by inefficient hand or hose watering. Above all, save time.

A MIST-O-LINE spray will accomplish these results for you. It has been proven the best method for flower sprinkling yet developed. Completely covers a garden 4 feet to 10 feet wide. Units are 10 and 20 feet in length. Equipped with standard hose connections—can be coupled together for any length desired. Place it on the ground, or anchor it to a fence, building or posts.

The MIST-O-LINE spray cannot be surpassed for long flower beds, evergreen plantings, dahlia beds, or narrow lawn strips.

Write for complete information and prices.

MUELLERMIST IRRIGATION CO.
2620 So. 9th Ave. Maywood, Ill.

off hundreds of strawberry runners so I simply left them alone to increase and multiply as they would. In the fall I sifted about five pounds of bonemeal, all over them and swept it off the leaves with a straw broom. Then I put the little patch of berry plants to rest, covering them over with a 6-inch quilt of dry leaves.

When I uncovered the strawberry bed towards the end of March, there was a mass of exceedingly healthy plants over most of the little plot. Soon they were growing a tremendous crop of huge leaves on tall stems, and blossom stems also began to appear in quantity.

I had read that strawberries should not be fertilized in the spring of their fruiting year. However, when I saw the great numbers of blossom stems, I felt that something should be done to help the plants mature such quantities of fruit. I made a mixture of various organic fertilizers: pulverized sheep manure, bonemeal, dried blood, cottonseed meal, and a small amount of a product containing essential trace elements such as boron, etc. The manure mixture was scattered over the strawberry bed while the berries were still very small and green or only in blossom stage.

On May 20, I noted that the plants were a foot or more high, husky and broad, loaded with bloom. Just for fun, I counted the number of blossoms and green fruit on one medium-sized plant. There were 84!

On June 3, I found my first red berry. On June 14, I picked nine quarts and the plants had not really begun. On June 16, I got 14 quarts; on the 20th, 16 quarts. I picked my last batch of any size on July 1—8 quarts! After that I did not count any more, as the number dwindled and berries grew smaller. Up to the first of July, I picked altogether 92 quarts from my little patch, 10 × 30 feet—hardly larger than a living-room. There were some berries on the plants all summer.

As my plants had been crowded together, many of the berries were not so large as they might have been, but even so, they were much larger than the usual frozen product on the market. However, great numbers of berries were huge, double-barreled tidbits as big as eggs. When allowed to get dead ripe, they were of a deep maroon color, so tender that juice oozed from them at the slightest touch, and they were of a melting sweetness with a spicy flavor.

I have no new plot to transfer my berries to, but I hope that by pulling up the old plants and retaining this year's rooted runners, I may have somewhat the same result. Generous mulching and manuring, and a winter covering of leaves, I hope, will bring me another fine crop next year. It remains to be seen. Everybody at our house thinks Red Rich is a wonderful berry.▶

SUPER QUALITY

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FROM OUR OWN NURSERIES IN HOLLAND

GLADIOLUS, LILIES
BEGONIAS, DAHLIAS
and Many Other Varieties of BULBS, TUBERS, etc., of deJAGER'S Renowned Superior Quality at Moderate Prices

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Send today for HOLLAND'S most Authoritative List including the Cream of the Latest New Introductions as well as the Best Standard Varieties.

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PYRAMID STRAWBERRY GARDEN

Adds interest and beauty to your garden. Produces a bigger and better crop of berries. 5 ft. size just right for 50 plants, complete. Only $6.95 ppd.

SPECIAL! 5 ft. Pyramid Garden with 50 SUPERFECTION everbearing strawberry plants . . . complete Only $8.95 ppd.

GROW IN YOUR OWN YARD!

Red Rich 5 STAR EVERBEARING STRAWBERRY

★ EVERBEARING ★ FINEST FLAVOR
★ ENORMOUS SIZE ★ HEAVY YIELDING
★ IDEAL FOR FREEZING

ORDER NOW! Red Rich plants grown for us by the originator are still limited. Don't be disappointed like so many people were last season.

RED RICH PRICES set by the patent holder.
12 plants . . . $2.95 25 plants . . . $5.00
50 plants . . . $8.50 100 plants . . . $15.00
All plants guaranteed and prepaid!

MAIL THIS COUPON WITH CHECK OR M. O. TODAY!

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Please send me the following, postpaid:
.....5 ft. Pyramid Garden(s) $.....
.....Red Rich plants $.....
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Name .....
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the Gardener Indoors

"flame violet"

WELCH NURSERIES

Episcia fulgida—good companion for African violets, providing the brilliant scarlet not yet found in saintpaulia flowers.

THE AFRICAN VIOLET has a gay cousin, clothed in leaves with metallic luster and blossoms of brilliant red. This plant, which is known as episcia, is still relatively rare in this country, coming originally from the Amazon basin. It is as tolerant of human error as saintpaulia, getting along fairly well when not supplied with all its needs and flourishing when catered to.

Best known of the genus is Episcia fulgida (E. coccinea), which has been featured as Flame Violet. The broad bronzy leaves of this species are thick and plushlike with veins of emerald green. The foliage alone makes it a plant worth growing, but against this handsome background are set the added attraction of flaming scarlet flowers, 1¼ inches across. Episcia fulgida sends out 6- to 8-inch runners on which new plants form. These are either allowed to cascade naturally over the side of the pot or are trained upon a small trellis, producing a beautiful specimen of some size.

Episcias do best in conditions resembling those of their native jungle floor, including a humid atmosphere and plenty of light (but not direct sunshine). Warmth is necessary, for episcias stop growing when the temperature drops to 65° and may die at 50°. They'll do well at an average temperature of 70° to 75° and flourish in the high 80's in summer. Potting soil should be loose and porous. You'll get especially good results with a mixture of two parts good garden loam, two parts leafmold, one part sharp sand, one part peatmoss, one part rotted manure and one-fourth part bonemeal. Water episcias by setting the pots in saucers of warm water every other day in summer and less often in winter.

the rare, beautiful...

WHITE CALLA QUEEN BEGONIA
in *bud and bloom*

Exotically colored, this rare and beautiful plant is guaranteed to give satisfaction to amateur and professional alike. Glorious foliage is variegated with delicate shadings of white, green, pinks and red. Many leaves are pure white, edged with red and pinks formed like miniature white calla lilies. This luxuriant foliage is crowned by constantly blooming, stunning bright red, fully double flowers. Carefully cultured and pot grown. Complete instructions for care and growing included.

$1.75 each

BEGONIA COLLECTION

MINIKIN ANGEL WING $1.00 ea.
(Begonia Felosia) Each leaf is like a miniature angel wing—the tips illuminated with dainty touches of red. Blooms profusely beginning with delicate pink and shading into white flowers.

JOAN STRONG BEGONIA $1.25 ea.
Newly introduced — gorgeous, shimmering dark red leaves... handsome pink flowers attain a size of one inch or more—bloom in clusters all year.

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Widely recognized for its uniquely beautiful hirsute growth. Crinkled edged leaves tinged with rose — gay, pink flowers blossom on stiff wiry stems.

COMBINATION OFFER of 4 begonias above including featured WHITE CALLA QUEEN only $4.95

BRIGHT GENEVA DOUBLE BEGONIAS
Four different potted prizes . . . each one a distinct, beautifully brilliant color . . . RED, PINK, WHITE and the NEW SNOW BLUSH. Lustrous green flowers contrast with cheery, bright double flowers. Four healthy, potted plants ..... ONLY **$2.50**

POTTED GLOXINIAS

$1.00 each
3 for $2.75

Watch these carefully developed, potted beauties burst into exquisite blooms for a new growing thrill. Maturing plant blossoms into velvety flowers over five inches in diameter that are unrivaled in appearance and color. Each plant is healthy and husky . . . (come only in mixed colors).

POTTED AFRICAN VIOLETS
$1.25 each
6 for $5.95

You'll be delighted with the ready to bloom — sturdy development of this potted prize. Buds develop into gorgeous plus size blooms of dazzling contrast against velvet-like foliage. Vivid color assortment of reds, bi-colors, whites, pinks, blues and lavender . . . just $1.25 each. Six beautiful plants . . . Only $5.95

SPECIAL!
Complete house garden One of each plant in this ad including 6 bulbs and three ivies—only $10.95 including velvet plant FREE!

GLOXINIA BULBS
Select imported BELGIAN tubers. Develop into gorgeous gloxinias like those described above—with breath taking clusters of five inch blooms. Hand picked assortment of striking colors.
6 for $1.40 12 for $2.75

Prayer Plant
65c each
2 for $1.25
(postpaid)

(Maranta Kerchoreana) Your friends will marvel at the attractive manner in which this unusual and attractive plant folds its leaves at night as though in prayer. Bright green leaves have interesting chocolate brown spot patterns. When folded at night they assume a distinct, vertical shape.

Ivies
3 different varieties
$1.00

Three lacey lovelies that will truly intrigue you with their charming leaf formations. They include the colorful Red Flame Ivy. Its rich, dark red color blends delicately through the satiny green leaves and stems as the plant grows. One of the most popular house plants today

MAIL your order today!
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- ☐ Combination 4 Begonias above $4.95
- ☐ Geneva Double Begonia 4 for $2.50
- ☐ African Violet $1.25 ea. ☐ 6 for $5.95
- ☐ Gloxinias $1.00 ea. ☐ 3 for $2.75
- ☐ Gloxinia Bulbs 6 for $1.40 ☐ 12 for $2.75
- ☐ Prayer Plant 65c ☐ 2 for $1.25
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- ☐ SPECIAL — One of each plant in ad, 6 bulbs, three ivies, $10.95. FREE velvet plant.

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FOR FASTER DELIVERY add 15c additional for SPECIAL HANDLING STAMP

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African Violets

LIVING COLOR FOR YOUR ROOMS!

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the Gardener Indoors

Home Greenhouse

By ERNEST CHABOT

ROCHE

When days become longer, flowers crowd the stems of established greenhouse plants, and seeds of annual flowers and vegetables are started in pots or flats of soil.

THIS is a busy month in the greenhouse; days are longer and bloom is profuse. More attention must be given to watering and insect control. Yet we must find time and space to raise seedlings for the garden. We try new plants as well as the old favorites and hope to produce better flowers.

This is the season to sow most vegetable seeds, among them broccoli, cauliflower, celery, lettuce (leaf and head), eggplant, endive, onions, parsley, Swiss chard, cucumbers, peppers, tomatoes and cantaloupe. Among the important bedding plants which need an early start are petunia, salvia, nierembergia, lobelia, nemesia, snapdragon, candytuft, carnation (border types), cineraria, browallia, dianthus, gilia and calendula.

Many gardeners prefer to use the greenhouse to germinate the seeds and then move them into a hotbed. There is much in favor of this system. It is easier to prepare seed flats on greenhouse benches of convenient height than to squat down in a garden frame. And temperatures—so important in the earliest stages of germination—can be more easily observed.

Once the seedlings appear, however, growing them close to the glass in a hotbed makes them shoot up more quickly and vigorously. As the season progresses, it is an easy matter to decrease the heat and admit more ventilation to harden off young plants. If you lack a hotbed, by all means at least have an unheated, glass-covered frame for this final stage of seedling culture.

A light, well-drained soil rich in organic matter is best for starting seeds. Soil from your compost pile is excellent, but good topsoil lightened with equal parts well-rotted manure and coarse sharp sand will do. Remove all coarse particles with a ½-inch mesh screen sieve. If you sterilize your soil, all the better. If not, a layer of dry sphagnum moss will do much to prevent damping off.

Seed should be sown thinly to have a few plants of good quality rather than hundreds of weak, spindly ones. One good watering will suffice until the first stages of germination. Future waterings are best done by sub-irrigation.

An even temperature, high enough for the particular plants grown, is important. Most seed germinates at 68°. Electric soil heating cable provides an excellent

auxiliary heating system for the higher temperatures.

The containers in which seeds are sown should be covered with a piece of glass and shaded with newspaper to hold in the moisture.

Not only do we devote our time to starting seeds of vegetables and flowers, we also raise plants to brighten the greenhouse during the dull days of fall and winter. The following tasks should not be overlooked.

Take African violet cuttings now to get flowering 4-inch pot plants by February. Fuchsia cuttings will be ready to pot in April. Rooted stevia cuttings can be carried over the summer in pots or grown out in the garden.

Gloxinia tubers started in February should be potted up this month.

If you have forced phlox into bloom, this is the time to take cuttings and grow them in the greenhouse until spring when they can be set outdoors. If you don't have stock plants there is time to buy clumps. Root clumps to be forced are dug after frost or carried in the coldframe until December or January.

I have had a lot of fun with African hemp, Sparmannia africana. It is a quick-growing shrub for the cool to moderate (50°-55°) greenhouse. Flowers are large, fragrant and showy and remain in good condition for a long time. The petals are white, centered with a big cluster of purple-tipped yellow stamens, making the flowers suggest big blackberry blossoms with the petals turned further back. This native of the Cape of Good Hope becomes a small tree in its natural habitat but can be limited to 3 or 4 feet under glass. No other shrub can compare with it at its blooming season. When well grown it is one of the finest white-flowered shrubs.

Sparmannia cuttings should be taken now and will root readily at 70°. Transfer them to 3-inch pots when well rooted. They will be ready for 6-inch pots in five or six weeks and for 8- or 10-inch pots two months later.

Sparmannia is not particular as to soil but good drainage is essential. Plenty of light and air are also required. Young shoots should be pinched two or three times. During spring and summer water well and syringe daily. Feed every ten days with a complete liquid fertilizer. Grow in partial shade during bright, hot weather, but in winter give all sunlight possible and water moderately.

In summer plants may be plunged outdoors in a semi-shaded location and left there until brought into the greenhouse in September. Prune the plants into shape and keep on the dry side after flowering. Mature plants may be grown for several years, but it is better to root new ones from cuttings every other year. Repot plants in fresh soil during March or April, removing as much of the old soil as possible.▶

An Orlyt Greenhouse costs less than buildings of usual constructions. *Model pictured above is 10 by 11 ft. Greenhouse structure only.....$395

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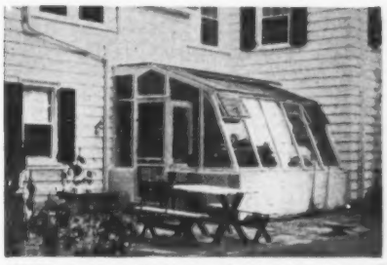

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How I rout the Squirrels, Starlings, Sparrows

by ALFRED E. RUNK
FLOWER GROWER'S BIRD EDITOR

THE greatest number of inquiries sent to me by mail or raised at lectures are about controlling squirrels, sparrows and starlings.

Usually, squirrels are harmless but when they park in feeders, they frighten birds and prevent them from feeding. Nobody would begrudge squirrels the amount of food they consume but their instinctive habit of filling their pouches and carting off everything that is not battened down, can become rather expensive.

There are a number of squirrel-proof feeders on the market, most of them based on the principle of tilting and/or suspension. They are quite effective but should not be located in the vicinity of buildings, shrubbery or overhanging tree branches for squirrels can then jump on them and, even if they are not able to hold on to the perches, dislodge considerable amounts of seed.

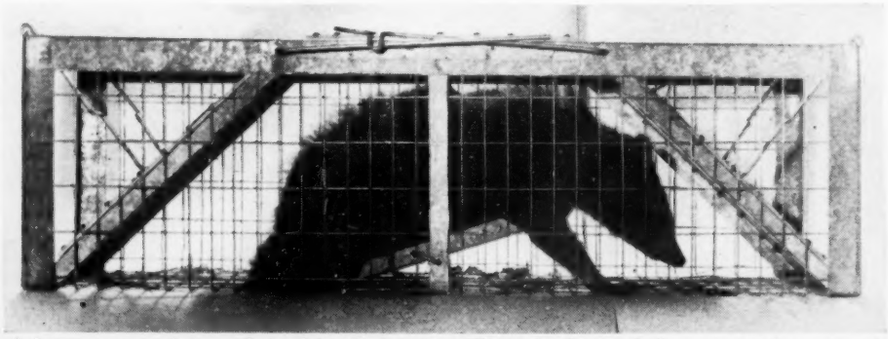
One of the most efficient methods of discouraging squirrels is to mount feeders on a thin metal pipe at a height of 6 feet or so. The thinner the pipe, the less chance of the squirrels even attempting to climb it. At the top of the pipe and just below the feeder, a metal sheet—at least 2 feet in width—is constructed in the shape of a cone, pyramid or umbrella and fastened at an angle of about 45°.

Many people also feed birds on the

ALFRED E. RUNK

When bird feeders are as concentrated as these, traps are the only practical way to eliminate enemies of birds. This picture was snapped in the author's own back yard.

ALLCOCK



A humane trap for good-sized bird enemies. When birds are fed on ground to attract species that won't use feeders, such traps are best answer to the squirrel problem.

ground to attract species that will not use feeders. In such cases the best way to eliminate squirrels is to capture them in humane traps such as the Havahart traps, which do not injure the squirrel or any mammals or birds that might be caught accidentally. We have found that when squirrels are released at least ten miles away, they do not return. For their liberation select a suitable site such as a beech or oak forest.

Let me take another pest—the English sparrow—or better still, you take him. He toils not, neither does he spin. A moocher, if there ever was one! The U. S. Department of Agriculture advocates his destruction for he is useless economically. Let him get started at the feeding station and he becomes the boss. Pretty soon he is joined by 10, 20, 50 and more of his kind, to the detriment of the smaller, less aggressive birds.

If, for sentimental reasons, these faults are overlooked, then consider what he has done to the bluebird. This beautiful and useful thrush was once one of our most numerous birds.

Control of English sparrows in cities, towns and villages is difficult and can only be accomplished as a community undertaking. They should be trapped in humane traps and destroyed. Although this destruction is advocated, legal and beneficial to bird life in general, it should be done only under the supervision of some member of the Audubon society or local bird authority. Under expert guidance, any native sparrows, immature buntings or towhees, female finches or the like that wander into the traps, may be released.

At a suburban home like ours, which is somewhat isolated, or on a farm, the problem is simplified by continuously chasing English sparrows so they are never permitted to become accustomed to the chow line. As soon as they put in an appearance in our garden, they are readily frightened by a clap of the hand, a wave of a towel or newspaper and, in extreme cases, by my chasing them with a broom for a block or more. The neighbors, who may have seen me pursuing an English sparrow on a cold, wintry morning in my pajamas, undoubtedly think I am somewhat "techted" in the head. Perhaps they are right, but we do not have any English sparrows!

English sparrows utilize birdhouses for their nesting sites. They require an opening of at least 1½ inches in diameter. Bluebirds use the same type of house and, where it is possible to attract these beautiful and valuable thrushes, the English sparrow may be deterred by mounting the houses on a pole at a height of about 5 feet. In structures intended for chickadees, downy woodpeckers, nuthatches, titmice, wrens and prothonotary warblers, the aperture is made 1¼ inches, thus thwarting the entrance of the English sparrow. In any case, it is important

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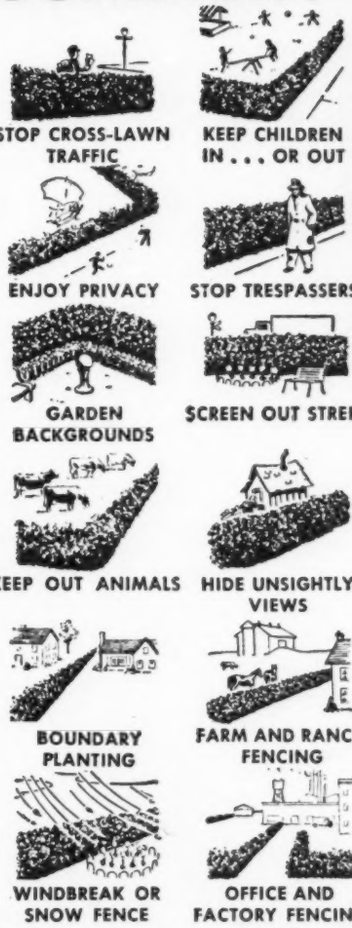

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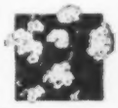

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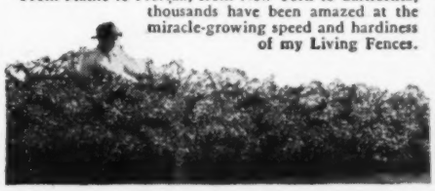

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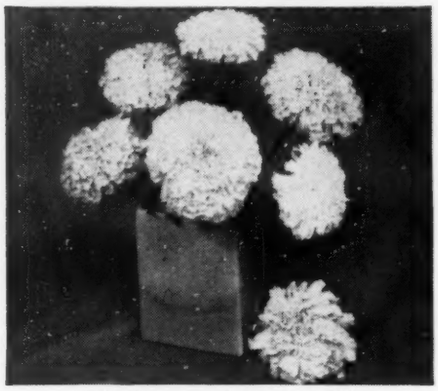

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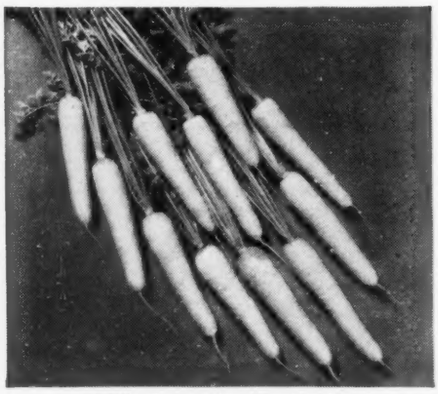

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to prevent the nesting of this pest by keeping a close watch, chasing them away and promptly removing any nests, partial or complete, that they have managed to build.

The starling has some redeeming features. He eats grubs and insects—also everything that isn't nailed on. Don't plan a bird sanctuary if you are going to cater to friend starling. For, after your nesting flickers, purple martins and crested fly-catchers are dislodged (if individual combat does not do the trick, sheer weight of numbers is always successful) be sure to remove every fruit-bearing plant that you have. You might as well! Your carefully nursed fruit crop will never serve its intended purpose of feeding wintering thrushes, waxwings, grouse, grosbeaks or purple finches.

Another redeeming feature of cousin starling is his cleanliness and abundance of good manners. The half-rotten worm, the droppings of the young, the slimy leafmold are compacted into a neat bundle. The potential enemy must never find it near the nesting site. So Mr. Starling flies off with it, looks for me and, I assure you, his aim at 100 feet is uncanny—especially, after I have dressed for dinner or am enjoying the visit of some dignitary.

In spite of the bad habits of the starling, his virtues may exceed his faults. For many years we did not permit starlings under any circumstances. That is, we chased them from the feeders, drove them off the lawn, removed every possible nesting site and scared them off by shooting into the air when they attempted to congregate on the fruit-bearing plants.

However, some years ago we had an infestation of Japanese beetles. Coping with this plague was quite a problem as we do not spray or fertilize. The only practical solution for combating the beetles was to let a few pairs of starlings nest. They proved their economic value by destroying the Japanese beetles while the latter were in the grub stage in the lawn.

Since then, we have compromised. We still frighten the starlings off the feeding stations and scare them, if they are in quantity, from our fruiting plants. We close off all potential nesting holes. If they try to roost on the larger trees, we attach a rope to one of the upper branches and, by repeated yanking, drive them away. But a few of our neighbors' starlings are allowed to work on our lawn; just for insurance in case the Japanese beetles again attempt an invasion.

If we lived in the city, we probably would feed English sparrows and starlings as they might be the only birds that could be attracted. But, being a suburban "hick," I think it of greater importance to be concerned about the welfare of our native, American birds than that of foreign, imported species.▶

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TASTE Red Rich banishes the doubt that everbearers can't be sweet. Chock-full of real, honey-sweet strawberry goodness.

FREEZING Freeze 'em whole. Solid, firm and red clear through. Wonderful shortcakes all winter long.

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red rich

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Southern Gardens

By JULIA LESTER DILLON

SPRING has come with its beauteous bounty of flowers. The late camellias and early azaleas spread their beauty on all sides. Early, midseason and late azalea varieties will carry the blooming period through until late April. The Kurumes flower first, then the taller Kaempferi with a different range of color, and finally the Indicas.

Since azaleas can be transplanted while in flower they can easily be chosen to give a consistent range of bloom. Avoid mixing the yellow tones with those of pinks and reds. Cover the planted bed with oak leaves three inches deep. That is all they need. Never disturb the soil or work it any more than you do around the camellias. Bonemeal is a good fertilizer. After planting, see that azaleas do not dry out and they will do the rest, giving you joy and beauty for many, many years.

CLEAN-UP now. Go over the shrubs and trees and remove all the deadwood. Make clean cuts and if stems are larger than two inches, paint the cut with a sealing paint. Heavy shrubs should be pruned out so they do not grow too tall and heavy.

PRUNE the dead canes out of the nandinas and, if there are stems of soft wood, leave them to grow out again. Do not chop them off to an even line, but leave some tall and others medium and short so that the berried clusters will be distributed over the entire plant.

All the heavy broadleaved evergreens should be pruned now. Take off the deadwood and cut them down low.

FOR NEW HEDGES on the boundary or dividing line, avoid the heavy ligustrums and pittosporums and use the small-leaved holly, the Ilex vomitoria, which is commonly called the Yaupon holly. It grows rapidly and the berries are brilliant for the whole winter season. For accents and hedges and backgrounds, as well as foundations, nothing is more beautiful.

CHINESE HOLLIES Ilex cornuta femina and burfordi are beautiful shrubs with spiny leaves and brilliant scarlet fruit. The Ilex cornuta burfordi, which was developed in America, is one of the handsomest of our berry-bearing shrubs. Pyracantha formosana is another very fine heavily berried shrub, which grows wider than tall and is a glowing picture during the fall and winter months.

FALL PERENNIALS should now be lifted and transplanted. All chrysanthemums and hardy asters need to be thinned and replanted.▶

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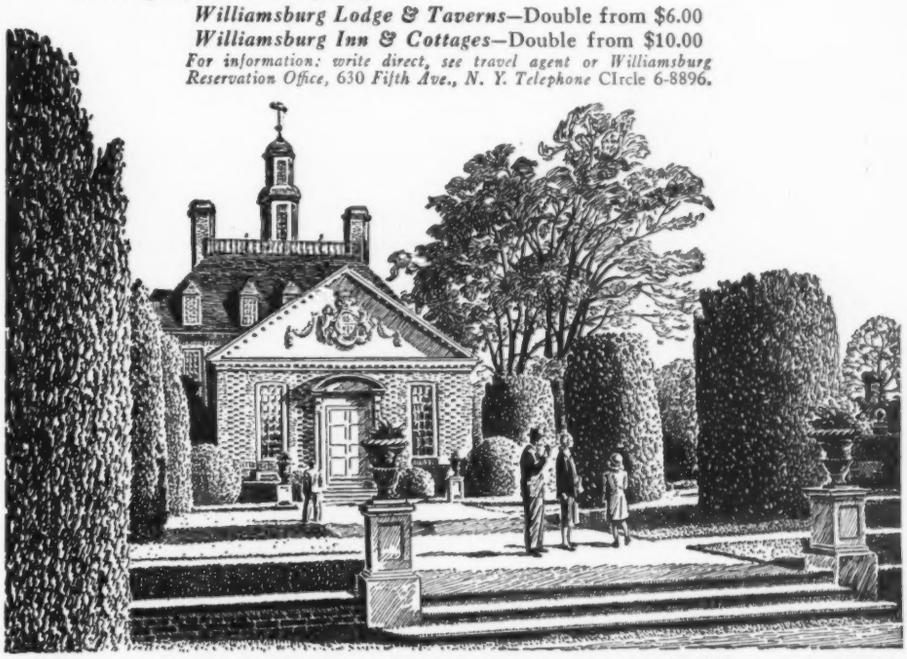

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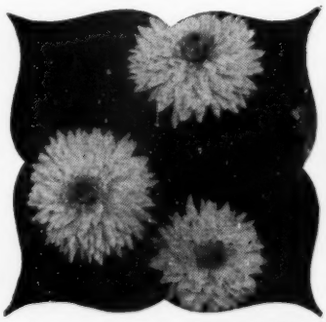
GONDOLIER — Rich claret overlaid crimson-vermillion shades in a huge 3½" bloom of silken loveliness. Full, deep "mums" profusely blossomed on stately long stems ideal for cutting. Blooms in late Sept. **$1.25 each; 3 for $3.50.**

ADMIRATION — Colorful! Lavish! Hardy! A delicate blend of peach, salmon-fawn softly flushed with red-gold. Admiration offers a giant and very double 3" blossom on 2½' plant of oak-like vigor. Blooms in late Sept. **$1.25 ea; 3 for $3.50**



REVERIE — A sublime blend of soft maple walnut tinted coral buff is perfectly complemented by the dramatic deep mahogany "eye". A unique sport of the "Jean Treadway", Reverie abounds with lush foliage . . . subtle charm . . . impressive beauty. Blooms. Sept. 25. **$1.25 each; 3 for $3.50.**

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West Coast Gardening

By LESTER ROWNTREE

To go in for the so-called neglected (or undemanding) garden so much in vogue on the West Coast, you need two things: imagination and a knowledge of plant requirements and your particular gardening conditions. If the plants you grow are not naturally suited to your soil and climate, the game is up. Moreover, even with this type of garden, it is impossible to avoid a certain amount of work and responsibility. Young plants must be gentled into their new homes, weeds must be unseated—especially during the first years; and when your plants have "taken the bit between their teeth" and started appearing where you don't want them, a discriminating eradication program is necessary. On my own hillside some of the individuals which overrun others are clarkias, Shakespeare's pansies, various poppies, felicias and many bulbs. These even come up in the vegetable garden, while my potatoes retaliate by showing up in the rock walls! Such surprises appeal to the footloose imagination, but if you happen to be a devotee of neat bedding plants, if you cannot stand a planting with an untrimmed edge, the carefree garden is not for you!

Southern California

This is the month for preparing the summer flower and vegetable gardens. For the former, blue shades can be supplied by the many good anchusas and lovely anagallis. Pink ageratum offers a change. Massed torenia is fine for brightening up the front of a shady fern bed. Take advantage of the rich textures and colors of salpiglossis. For a summer-long yellow daisy that will take a lot of drought and all the sun you can give it, sow seed of Baileya multiradiata, a native growing in the eastern Mojave Desert. However, this annual cannot stand poor drainage, so if your soil is heavy, lighten it with gravel or sand.

Many times during the last few years, throughout the entire state certain vegetables have been difficult—even impossible—to obtain. And after they finally reappeared on the market, their prices had been upped. Potatoes, onions and carrots are cases in point. These are all easy to grow, especially if you have a compost pile to condition your soil.

California Fog Belt

March is the month for getting those three Fog Belt stand-bys under way—fuchsias, tuberous begonias and pelargoniums. Plant begonias outdoors.

Prune fuchsias if you haven't already done so, taking about two-thirds of last year's growth. Repot hanging fuchsias, giving them one part leafmold, one part sand, one part cow manure and two parts loam. Keep your pelargoniums on the dry side. These make particularly good potted plants because they bloom better when root room is limited.

Many plants which bloom only in winter in other sections of California flower all summer as well in the Fog Belt. Among these are nemesia, calendula, viola and cineraria.

Sacramento and San Joaquin Valleys

Peach leaf curl is the bane of many flowering fruit tree enthusiasts. The trees must be sprayed, of course, but if yours are sturdy, strong growers, you can prune them drastically as soon as the flowers are over and you will get clean new growth.

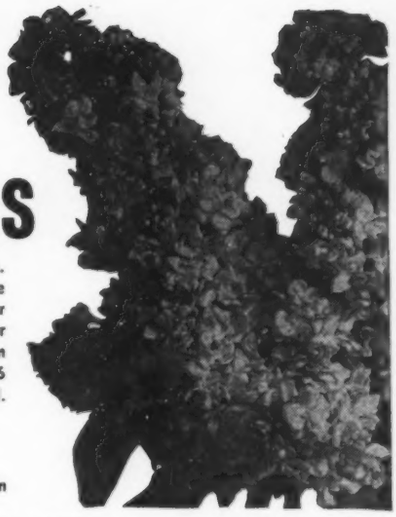
Separate and reset cannas and dahlias this month. Incidentally, do you know what superb cut flowers the single miniature dahlias make? Some of the first ones were grown in England in 1891. They are said to be hybrids of Dahlia mercki and a cactus dahlia, and over the years have been called coronas, collarettes and orchid-flowering. They now come in various shapes and heavenly colors. Named miniatures carried by West Coast nurserymen include Baby Fonteneau, dainty rose pink; Easter Bonnet, salmon buff; Baby Royal, salmon and gold; Helly Boudewijn, a low-growing white waterlily type; Ike, taller, dark maroon and prolific; Arabeske, sulphur yellow. Quite unlike the pompons, these produce flowers 3 to 4 inches across and are often grown as annuals. I leave the tubers of my best-colored blooms in the ground to reseed.

Pacific Northwest

Instead of using lobelias as edging plants, try grouping their various blues with a few white flowers, placing the whole planting in front of silver- and gray-leaved perennials such as senecios and artemisias. The effect is nice.

Peat gardens, patterned after the one at Edinburgh Botanic Garden, Scotland, make happy homes for dwarf ericaceous plants. Peat gardens are sometimes composed of small terraces, with plants tucked into perpendicular rises as well as level sections. The soil is nothing but honest-to-goodness peat of the highest quality. Sometimes other peat-liking plants, such as choice primulas, are grown along with ericas. And, speaking of prims, better take the precaution of treating the new bed with a solution of lindane, following the directions on the container. If an established planting is badly infected with grubs, the lindane solution can be applied via watering can.▶

Brand's OWN ROOT FRENCH LILACS



No other shrub offered today gives more lasting satisfaction. Great panicles of bloom in shades of red, blue, pink and white bring a wealth of sweet perfume to your garden year after year. Since a lilac well planted and cared for lasts longer than a lifetime, only the very best should be planted. From 50 outstanding varieties we grow, we offer the following 6 as a superb collection to those who do not know varieties well.

EACH IS DISTINCTLY DIFFERENT IN COLOR! EACH ONE IS A GEM IN ANY LIST!

EDITH CAVELL a favorite white. One of the two best in this color class.

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HENRY MARTIN a blue lavender with large florets and panicles that measure 13 inches in length.

MONGE brightest deep red holds color well.

PRESIDENT LINCOLN a true wedgewood blue. Conspicuous in any fine planting.

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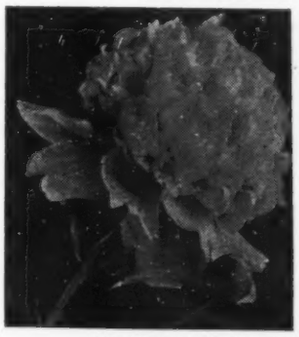

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BRAVO a big red rose that completely dominates the show during the blooming season. $2.25 each.

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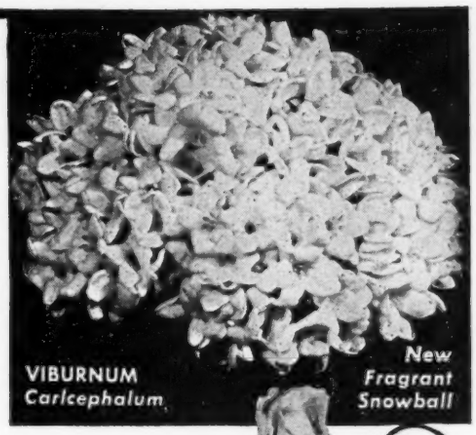
Wayside Gardens

New SHRUBS, ROSES and PERENNIALS

This year, the many unusual and worthwhile new shrubs, prize roses and hardy plants in our 1953 Spring Catalog are really something to boast about. The exciting new things listed below are but a handful of the many handsome new garden subjects offered. Not shown, but destined for top honors is the hardy, new, dwarf Barberry, *Crimson Pygmy,* a completely irresistible new red-leafed miniature.



VIBURNUM *Carlcephalum*

New Fragrant Snowball

Three Superb New SHRUBS

VIBURNUM, ***Carlcephalum.*** Fragrant Snowball. New English sensation that is unquestionably the finest flowering shrub introduced in the past 50 years. Huge, 6 inch clusters of very fragrant white flowers bloom lavishly on graceful, 6 ft. plants. Of branching habit and quick growth, it does equally well in acid or alkaline soil. Stunning new Wayside *exclusive* is hardy at 10 below zero. Plant Pat. 776.

YELLOW LILAC, ***Primrose.*** Magnificent new European introduction—only lilac of its color in existence. Gorgeous flower heads of this rare and unusual new variety are a lovely soft cream-yellow. Just one of many new Wayside *exclusives.*

CARYOPTERIS, ***Heavenly Blue.*** Spectacular Wayside origination. New dark blue form of the very popular Caryopteris, *Blue Mist* introduced by us several years ago. Upright in growth, each plant produces 20 or more exquisitely beautiful flower spikes of deepest blue—a very desirable color in the fall garden.

MA PERKINS. Cup-shaped flowers of radiant coral-shell pink, suffused with yellow, bloom profusely on strong compact plants.

Ma Perkins FLORIBUNDA ROSE

*AARS

CARYOPTERIS *Heavenly Blue*

TEA ROSE *Chrysler Imperial*

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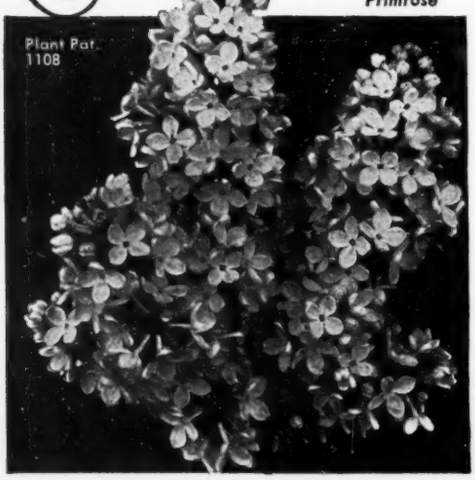
*AARS. *1953 All-America Rose Selections*

New ROSES

REMEMBRANCE. Delightful new hybrid tea of gardenia-like beauty and perfection. Handsome canary yellow buds open to elegant flowers of cream-yellow edged in dawn pink.

CHRYSLER IMPERIAL. New hybrid tea—an ideal exhibition rose. Vivid crimson-red flowers are enhanced by blood-red overtones.

LILAC *Primrose*



New PERENNIALS

HARDY ASTERS. Illustrated in our Spring Catalog are 9 hardy, new, *Brilliantly Colored Asters* originated and introduced exclusively by Wayside Gardens. From over 6000 fine seedlings, the best 9 varieties have been selected, and are offered for the first time this Spring. Amazingly hardy, easy-to-grow, they will bloom abundantly until frost. Bright, clear shades provide brilliant color in the late summer and fall garden.

ANTHEMIS, ***Grallagh Gold.*** Superb new English border plant. From early June until September, it forms a huge bouquet of hundreds of golden flowers that are borne on stiff wire-like stems. Wonderful as a cut flower since blooms last three weeks or more. Absolutely hardy, it will grow anywhere. Plants are 2½ ft. high and 2 ft. wide.

DIANTHUS, ***Clove Pinks.*** Offered for the first time, 3 exceptionally fine new varieties . . . *Cheerfulness,* Tyrian rose, maroon center. *Crimson Glow,* deepest dark red to date. *The Bishop,* rich dark purple. All are very fragrant, perfectly hardy and bloom freely.

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Wayside Gardens

Soil and Garden

SOME day it may be decided that the most important study of our time was the study of the soil. It may, indeed, be decided that if it hadn't been for the soil-study and soil-consciousness of our era there'd be no one, some day, to decide or study anything. But, even if succeeding generations don't think our 20th century soil science was *quite* that vital, they'll doubtless concede that it was pretty vital to our continued prosperity—if, of course, some other science doesn't botch whatever prosperity our soil science made possible!

The fact is that the economic importance of soil management is better understood today than it ever was in the past, and because it is better understood it is more widely publicized, more vigorously preached, and more enthusiastically studied by those who *should* study it, namely the producers of economic crops.

It is not FLOWER GROWER's purpose, in the section beginning on page 61, to focus attention on the importance of soil management from the economic standpoint. Rather it's our intention to emphasize the part it plays in the existence and progress of the finest of all hobbies—and to show that the study and care of the soil is an interesting and rewarding *part* of that hobby.

SOME of our older readers will recall that Madison Cooper, the founder and first editor of FLOWER GROWER, made much of what he called "soil contact" and that his belief in the value of actual contact with the soil was the cornerstone of his "Cooper Plan" for a more solidly prosperous and happy America. Even in the first year of publication, 1914, he editorialized on the Biblical quotation, "Unto everyone that hath shall be given," to stress that only if we have good soil, i.e., if we maintain it in good tilth, shall we secure from the soil its full productivity.

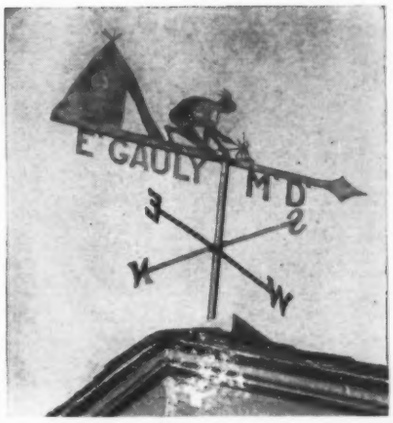
Soil science and American gardening and FLOWER GROWER, too, have come a long way since 1914, and in this largest of all our issues to date I think you'll find that not only have all three become much more important but much more interesting too. And I think our special soil section will go a long way toward convincing you that a genuine *interest* in the soil will prove rewarding to anyone who *owns* any soil. What the section offers is not, of course, a scientific or technical account of soils and soil management, but a word-and-picture story of how the well-being of garden plants is dependent on the soil and how the well-being of garden soil is dependent on us.

PERHAPS the basic fact that present-day soil science teaches is that the soil, far from being a lifeless mass of crushed rock and rotting waste, is as much the abode of teeming life as is the space above it, and that life below the soil surface is *essential* to life above. And so, as at least one soil scientist has emphasized, the farmer's or gardener's first obligation is not to his plants but to his soil—to feed his soil, which in turn feeds his plants.

And because soil life is essential to plant, animal and human life, our obligation is not to foster the soil's welfare only for the sake of ourselves, today, but for the sake of those who will succeed us. The way we, as farmers or gardeners, treat our soils this year will have a definite influence on the farms and gardens of the years ahead.

Our "Better Soil—Better Garden" section will, we hope, show you the interesting aspects of soil-consciousness and also convince you of its vital bearing on the goodness of gardens present and to come.

Theodore A. Weston



This Indian medicine man decorates the weathervane of Dr. Edward Gauly, of North Royalton, Ohio. The Roches spotted it on a recent photographing trip and report that Dr. Gauly chose it to tie in with his profession and his hobby—an interest in Indian lore.

Coming in April Flower Grower

■ **If you've ever had a lawn problem you'll find its solution in the April FLOWER GROWER—a big super-size issue with a special feature section "Your LAWN—the Most Beautiful in Town." This feature will cover seeding, watering, mowing, lawn tools and new lawn grasses and another complete directory—the first on lawn equipment—listing hand and power mowers, fertilizer spreaders, rollers, spikers, tampers, hand tools, and all other materials for lawn maintenance. Don't miss it—you'll want to keep this big lawn issue to refer to again and again.**

■ **In addition, we'll bring you a full quota of feature plant articles—one on perennials that are really hardy, two on azaleas for beginners and specialists, one on choice new rhododendrons, a feature on growing exhibition mums in an outdoor pit and one on insectivorous plants.**

■ **In the garden planning line there'll be another installment of "Tie Your Garden to Your Home" covering decorative outdoor window features and plant boxes.**

RICHARD MAURER

This fine picture window in a living-room corner of a country home is a natural! It frames a deeply satisfying view of trees, a lake and distant wooded hills. The fortunate owner of this all-too-rare type of picture window found it necessary to do little special planting.

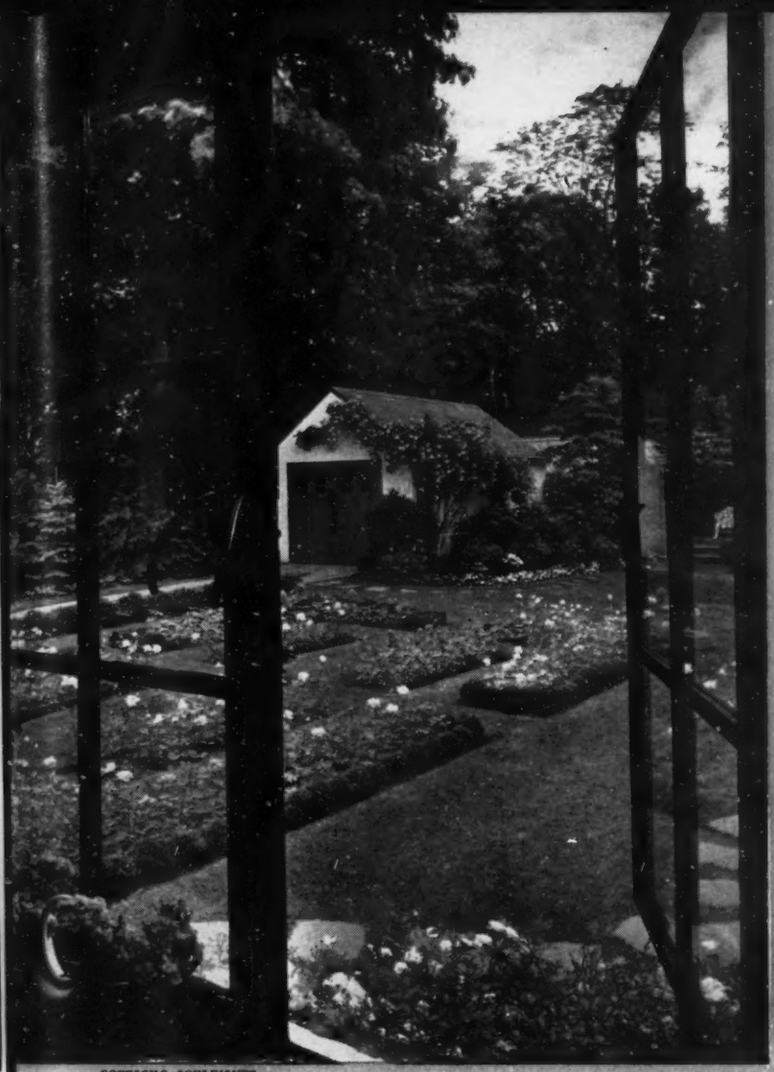
Put a Picture in Your Picture Window

by DONALD J. BUSHEY

IF YOUR home is in the country and your picture window frames a distant view, you really have a PICTURE window. Little planting is needed nearby, except perhaps a small-growing deciduous tree for summer shade and a low hedge, shrubbery or flower border beneath the window. (See Figure 1.) But if you live in a fully built-up community with houses all around, yours is likely to be a picture WINDOW . . . that is, it's apt to boast more window than picture, providing the public with a clear look into the house and/or framing an unwanted view. Most people will agree that a neighbor's driveway, garage or clothes' drying yard is not an attractive sight. So if you daily stare such a view in the face, why not get busy right now and change it. Plant your own picture right on your own property . . . with an eye too to escaping the public eye if that's a problem.

Because most picture windows are located at the front or side of the house, let's consider planting methods for these windows first. If the house is on relatively level land, the distance from house to objectionable view governs, generally speaking, the type and size of screen to use. But, in most instances, a 6-foot-high screen planted along the property line should suffice provided this line is 10 to 25 feet from the house. The screen can be either a sturdy vine-covered fence or a clipped hedge. If the fence is your choice, big-leaf wintercreeper (Euonymus fortunei vegetus) is a good evergreen vine to use, providing a year-round screen. If eliminating the winter view is not necessary, a dense deciduous vine, such as clematis, American bittersweet (Celastrus scandens), trumpet honeysuckle (Lonicera sempervirens), five-leaf akebia (Akebia quinata) or climbing roses will do nicely. In either case, the living green wall is an excellent summertime foil for a bright flower border. (Figure 2.)

If a clipped hedge is the preferred prop- [SEE PAGE 124]



GOTTSCHO-SCHLEISNER

The picture had to be put into this picture window! But the result is truly charming—a rose garden edged prettily in boxwood.

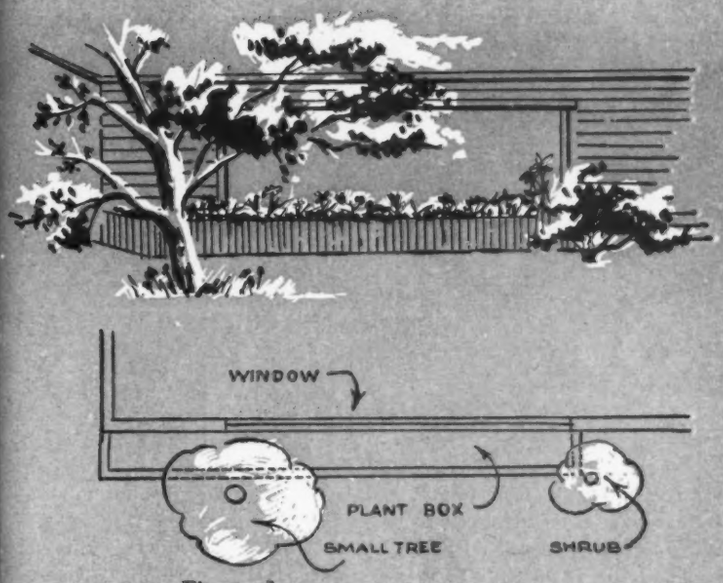


Figure 1

LITTLE SPECIAL PLANTING is needed for a window with a view . . . perhaps a small deciduous tree nearby to give summer shade, yet admit winter sun, and a low-growing hedge, shrub or flower border.

IF YOUR PICTURE WINDOW BOASTS MORE WINDOW THAN PICTURE, THERE'S A REMEDY

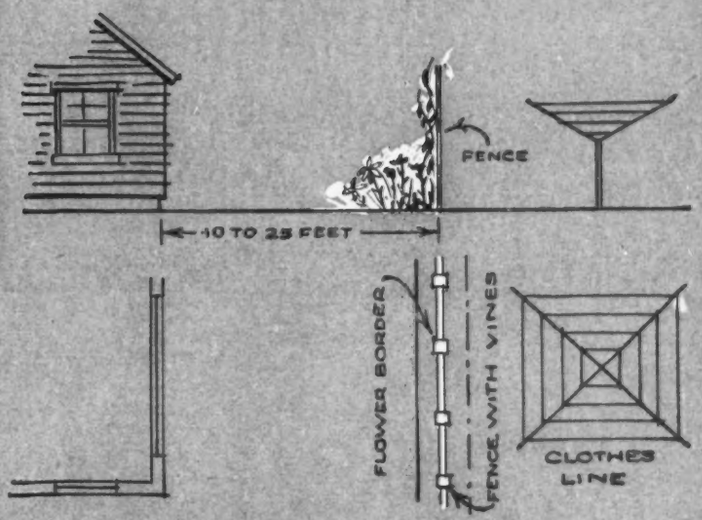


Figure 2

A 6-FOOT VINE-COVERED FENCE on your property line will screen an unwanted view—provided your line is 10 to 25 feet from house and the yard is level. Plant color-gay flowers in front of vine.

PLANS BY AUTHOR

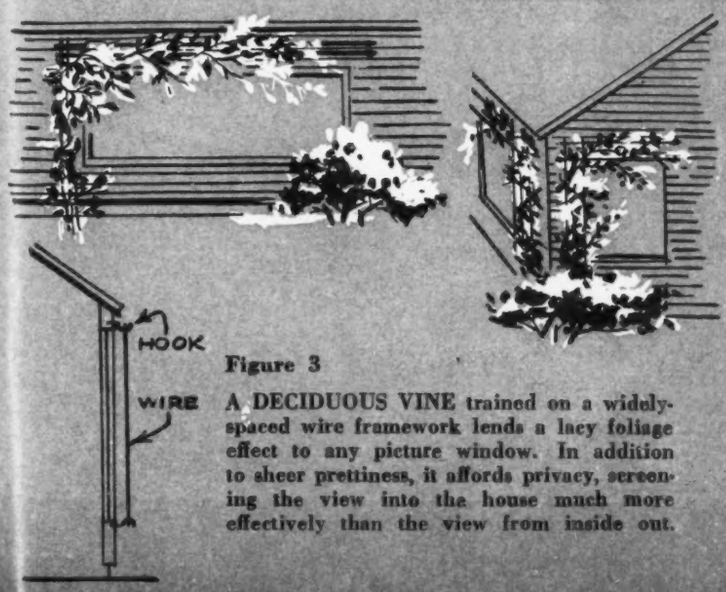


Figure 3

A DECIDUOUS VINE trained on a widely-spaced wire framework lends a lacy foliage effect to any picture window. In addition to sheer prettiness, it affords privacy, screening the view into the house much more effectively than the view from inside out.

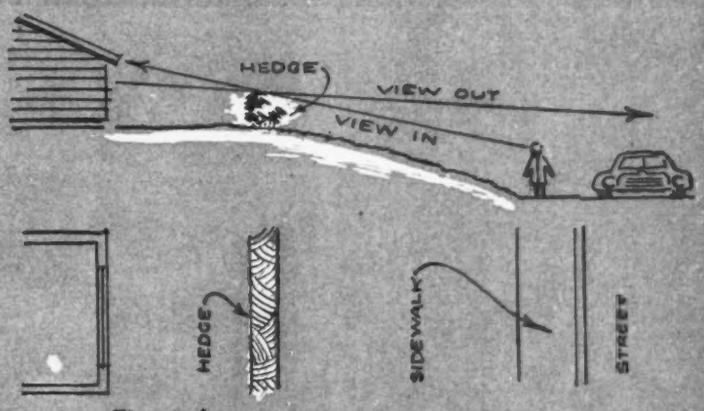


Figure 4

A LOW HEDGE—2 to 2½ feet high—is the perfect screen if your house is several feet above street level and the lawn slopes gently 15 feet or so and then drops off. Plant hedge in front of drop-off.

When you order your

CHOOSING SUITABLE VARIETIES IS THE FIRST STEP TOWARD SUCCESS

The best way to get off to a good start with roses is to select the best varieties. Vigor, productivity and disease-resistance are particularly important to the beginner, for success or failure may make you a rabid rose fan or forever discourage you from having a rose garden.

Where should you buy your roses? There are many reliable producers of rose plants vitally interested in your success. But be on guard against those few whose only consideration is your first order. They are compelled to unload their inferior product at reduced prices through various outlets.

Rose "bargains" usually result either in dissatisfaction or complete failure. They are of inferior stock that has been improperly graded, mislabeled and poorly handled. The superior product of the conscientious nurseryman may seem high-priced in comparison but he gives you good dollar-value in properly graded and clearly labeled plants. From these you get more ultimate satisfaction than from the five-dollar-a-dozen department-store collections that are available in many towns each spring. You'll find that the reliable nurseryman often lists collections of popular and mass-produced varieties that represent exceptionally good values for the beginner at moderate prices.

There are three horticultural groups of roses from which beginners should choose varieties:

The popular and well known HYBRID TEAS are available in a wide range of colors. Intermittently throughout summer and fall they produce large well-formed blossoms, usually fragrant.

POLYANTHAS and FLORIBUNDAS are rapidly increasing in favor for they are ideal to use individually or in mass plantings. Although the blossoms lack the individual beauty of hybrid teas, they are produced continually throughout the season and the plants are somewhat more hardy.

CLIMBERS and PILLAR TYPES are available in far fewer varieties than other roses. However, the plants can be used

A beginner's order should be carefully selected from vigorous varieties from a reliable source.

ROCHE

ROSES...

by ROY E. SHEPHERD (Ohio)

to advantage in locations where roses of other types are not suitable, such as against a tree stump, arbor or lattice.

For suggested varieties for the beginner see the list of all three types on page 142.

Let's assume we've selected our roses and are ready for planting. It is better to plant one rose bush correctly in congenial surroundings than to plant several where survival will be difficult and where maximum bloom production and vigorous growth will be impossible.

Good drainage and a reasonable amount of sunlight (at least 40 per cent) are essential requirements. Areas which are heavily infested with tree or shrub roots should be avoided as the rose cannot compete with them for food.

When it is necessary to remove damaged roots, root pruning should not be severe, as the nourishment required by the plant for future growth is obtained from the soil by means of small feeder roots that grow from the main ones. These develop slowly on transplanted roses and when severely cut back to avoid digging a larger hole, the root system is seriously injured and may never succeed in completely overcoming the handicap placed on it by the lazy gardener.

If a few basic rules are followed the planting should be successful!

(1) Dig the hole large enough to accommodate the roots without cramping and do not expose the plant unnecessarily long to the drying influence of sun or wind while doing this.

(2) Prune the top about 6 to 10 inches from the crown and to a point immediately above an outward pointing bud. Remove injured roots and the projecting short stub of seemingly dead wood that protrudes above the point where the variety was budded onto the understock. The growing tissue will soon strongly unite the scion and stock and there will be less danger of breakage and disease at this point.

(3) Place the plant in the hole so that the roots are spread out in all directions and pointed slightly downward. In areas where winters are severe, the point where the stub was removed should be placed about an inch below the surface. Where winter protection is not required, it may be level with or slightly above the bed level.

(4) Work loose (not lumpy) soil around the roots to about 1½ inches above them. Soak thoroughly and, after water has drained away, distribute about two ounces of fertilizer in the hole. It may then be filled with soil and mounded up to the top of the canes. After the plant has become established (in about two weeks), the mound should be removed, preferably on a cloudy day as its sole purpose is to retain moisture in the canes until the roots begin to function. Burlap or any other material that will shade the canes may be used instead of the earth mound. For winter protection, however, nothing will serve as well as earth.

(5) A mulch of straw, lawn clippings, ground corn cobs or buckwheat hulls will conserve moisture, discourage weeds, and reduce the possibility of disease. Several sprays and dusts that will control both diseases and pests in one operation are now available. They should be applied as the manufacturer suggests. Watering should consist of [SEE PAGE 141]

For a Beginner's List of Roses See Page 142

ROCHE

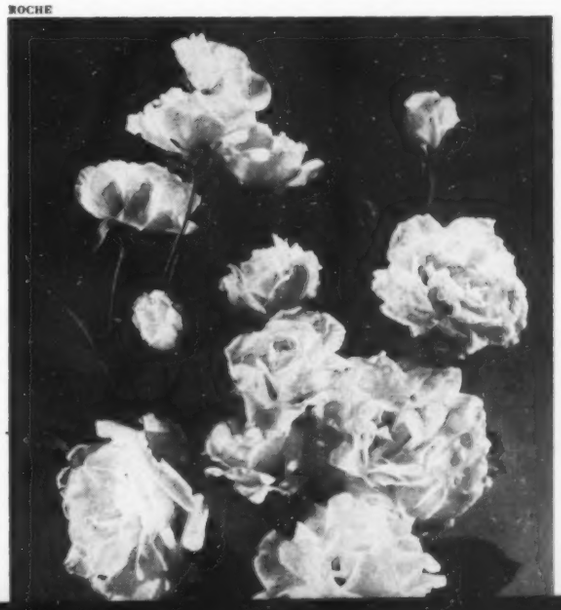
Hybrid tea Peace—proven variety of great beauty.

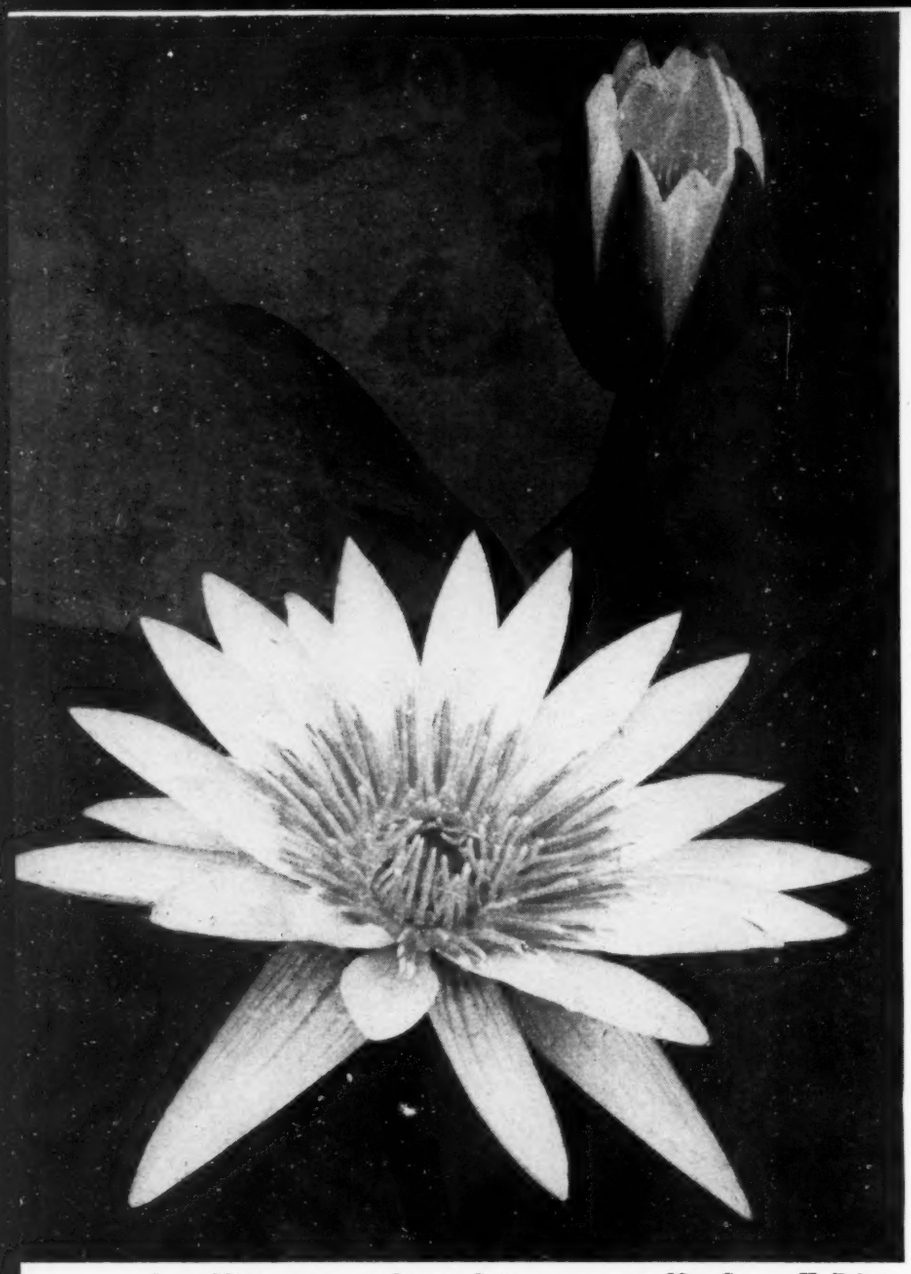
ROBBINK AND ATKINS

Climber Chevy Chase—"sure-fire" success number.

Floribunda Irene of Denmark—tops for beginners.

ROCHE





A sparkling snowy star that revels in summer sun, Mrs. George H. Pring—introduced in 1922—is still among the best white day-blooming tropicals.

choose the best waterlilies for your pool

by GEORGE H. PRING and LADISLAUS CUTAK
MISSOURI BOTANICAL GARDEN

WATERLILIES require so little care that they should be included, almost imperatively, wherever a garden pool exists—be it large or small, ornate or simple. Their flowers may be no bigger than a quarter or expand fully 12 or more inches in diameter. Some show off blossoms during the daytime, while others prefer to unfurl under the spell of night, and they boast most of the colors of the rainbow. Although a number of varieties require a lot of elbow room to develop, others fit even an aquarium. So you see, there are waterlilies to fit any situation.

For convenience the waterlilies are classified as hardy and tropical (or tender). Although true species and varieties are widely distributed throughout the world, most forms grown extensively under cultivation are really hybrids. In Europe, prior to the First World War, the hardy varieties were far in the lead, and it was there that Marliac developed a race of hybrids that are still unsurpassed in their class. In America the tropical waterlilies have held sway ever since William Tricker established the first American commercial water gardens in 1895 and produced such delightful day-blooming waterlilies as PANAMA PACIFIC, MRS. WOODROW WILSON and WILLIAM STONE.

In 1912 breeding of tropical day-blooming waterlilies got under way at the Missouri Botanical Garden, and their list of "firsts" is impressive: the first pure white, MRS. GEORGE H. PRING; the first

LADISLAUS CUTAK PHOTOS

Purple night shadows cling to day-blooming Midnight—high-ranking semidouble tropical.

improved yellow, ST. LOUIS; the first orange, TALISMAN; the first true semi-double, MIDNIGHT, and the first in all colors in the viviparous forms (which produce live plants on the leaves). And now come two new tropical pygmies, NYMPHAEA HEUDELOTTI and N. SULPHUREA, which are being used in breeding and will be available after the project is completed. While on the subject of "firsts," the introduction of N. COLORATA should not be overlooked, and the Missouri Botanical Garden takes a bow for this, too.

Hardy waterlilies are equally at home in concrete pools, in mud-bottomed ponds or in tubs. Most of their lovely blossoms are held just above the surface of the water, or float gently on it. The stiff stems of the tropicals, on the other hand, are thrust fairly high in the air. Of course, the year around, hardy waterlilies start blooming earlier than the tropicals, but the latter are more prolific through the summer and well into the fall, often making a gorgeous display when warm weather reappears after a frost has nipped the buds.

At least thirty kinds of hardy waterlilies are available—too many to describe here. Of those we consider outstanding, one of the best is SUNRISE. The flowers, a glorious sunny shade with golden stamens, are exceptionally large and fragrant and are produced early in the season on established plants. For a rich red either ATTRACTION or ESCARBOUCLE is stunning. Both Marliac creations, the former has large flo- [SEE PAGE 124]

◀ Nightfall magically unfolds red petals of tropical waterlily H. C. Haarstick — an outstanding name in the red color class.

A pretentious pool or an humble aquarium? Either a large-flowered Missouri or a pygmy waterlily will find a comfortable home. ▼

THE AUTHORS DISCUSSED POOL CONSTRUCTION IN FEBRUARY, PAGE 52

Glowing yellow blossoms—gay water "sunflowers"—reflect ol' Sol's rays amid satiny leaves of tropical St. Louis.

Campanula blue joins the waterlily kingdom in the wide-spreading petals of this handsome diurnal tropical, Bob Trickett.

tie your garden to your

A terrace, patio or porch built out from the door leading to your garden area is the perfect link—quite literally speaking—between house and garden. It is a particularly apropos unifying device, for such an area itself is a wedding of the two, being both an extension of the living quarters outdoors and the garden into the house.

As the accompanying photos attest, the larger your terrace or porch is, the more attractive and useful it will be. But even a small area will make the transition from house to garden effective. Ideally, however, a terrace or porch affords ample room for lounging as well as play space for small fry.

Don't hesitate to take full advantage of these photo ideas, bending them to your individual needs. Pictured here are various screening methods, all designed not only to give you privacy and blank out unwanted views but also to add character, substance and form to the area. The photos also show you how to get shade—from house, trees or some form of trellis or screen construction. Then, too, you'll note that the pictures emphatically insist on the weather-wise importance of paving, of a dry, smooth, easy-to-clean surface for near year-round enjoyment. But enough of words. Let's let the pictures do the talking!

MORLEY BAER FROM LOUISE PRICE BELL

A wall of windows overlooks this delightfully roomy take-it-easy terrace, which effortlessly connects house to garden beyond. Repetition and angular placement of raised brick-walled planting areas enhances spaciousness, forms pleasingly irregular design. Brick and grass floor accommodates the tramping of small fry in all weather.

A step-down, vined arbor controls the sun interestingly and gives this terrace form and substance plus a delightful privacy. Yet it avoids forbidding look of solid wall. Also gives space illusion by creating sense of mystery of what's beyond. Tree clump offers squint-free place to relax, establishes happy sense of balance. ▶

Here's an imaginative solution to the problem of blending indoors and outdoors: a sweeping expanse of porch walled (almost!) at one end with lush living green. A vine-porch treatment to do any house proud. Growing from wooden tubs, the luxuriant vines speak a soft, pretty-patterned contrast to the straight, hard plain surfaces. In addition to decorative charm, the vines contribute privacy, making the porch an ideal living area.

MAX TATCH

home ...

SECOND OF A PICTURE SERIES ON HOW TO LINK YOUR GARDEN TO YOUR HOME. TERRACES AND PORCHES ARE THE SUBJECT THIS MONTH. YET TO COME: WINDOW TREATMENT AND PLANT BOXES.

MAX TATCH

Passageway with overhead lattice is relatively simple architectural device for relating ranch-type house to garden. Lattice admits sun appreciated by plants—*and* loungers when chairs convert wide walk into terrace. Greenery relieves severity of harsh, square lines.

BILL SEERS FROM LOUISE PRICE BELL

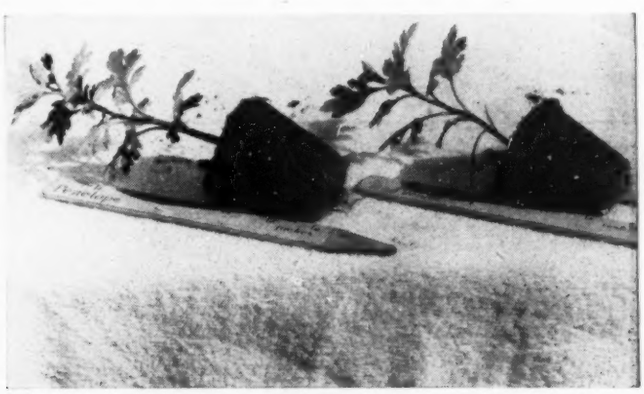
To propagate mums from cuttings, start with a healthy stock plant having good 6- to 8-inch shoots such as plant above.

Take 2½-inch cuttings from the tips of shoots, cutting just below a leaf joint. Dust the cut ends with a hormone powder.

Insert cuttings in a container of sand and put in light, airy place. Keep sand moist, preferably watering from below.

ERNEST L. SCOTT PHOTOS

Most cuttings root in three weeks in an average room temperature. Given mild heat beneath, they root considerably faster.



To lessen shock of transplanting outdoors, plants are first moved to pots for 10 days. Those shown are ready for garden.

Rooting Chrysanthemum Cuttings

by ERNEST L. SCOTT (N. J.)
CO-AUTHOR OF "CHRYSANTHEMUMS FOR PLEASURE"

CHRYSANTHEMUMS grown from cuttings produce more and better blooms, have better foliage and are more vigorous than those grown from root divisions. That is the considered opinion of critical growers. The process is basically this: When overwintered mums have started rapid growth, 2½-inch cuttings are taken from the tips of branches and inserted for about an inch in clean builders' sand which is kept moist and at 60 to 70°. In ten days to five weeks a reasonable percentage of rooted cuttings will be obtained—*depending on circumstances.* The trick is to control the circumstances.

Of course, there is no best way to do this. I shall only outline procedures that have given us excellent results and point out a few trouble spots. Whatever the method, stock plants with good shoots are imperative. If the chrysanthemums have spent the winter in a coldframe (a usual spot) the frame is gradually opened as winter changes to spring. The fight against insects and diseases starts with spraying or dusting at ten-day intervals with a fungicide and insecticide. Fermate and sulfur plus nicotine or tetraethylpyrophosphate are effective. And keep a lookout for slugs.

Keeping the foliage dry helps control spread of nematodes and the fungi that cause leafspot, rust and mildew. So, the glass stays in place during rainstorms and watering is done carefully. Sodium selenate applied to the soil protects cuttings from nematodes, but it should not be used if the soil is ever to grow food crops. And any stock even suspected of being infected with stunt, mosaic or yellows should be rigidly discarded—preferably in the fall. Ordinarily, the same is true of mums with Verticillium. An irreplaceable variety, however, might be the exception if strict care (outlined later) is taken.

Some people claim success when they stick the unrooted cuttings of mums in the ground where they are to grow. The year we tried that brought such poor results that the experiment has never been repeated. Of the many media recommended for rooting cuttings, we have found sand to be as good as vermiculite alone or mixed half-and-half with sand or peatmoss. Sand and peatmoss, half-and-half, is another possibility. Commercial growers steam sterilize their rooting medium, but builders' [SEE PAGE 60]

Growing Cascade Chrysanthemums

by BEN ARTHUR DAVIS
GARDEN EDITOR, HOLLAND'S MAGAZINE

GROWING chrysanthemums in cascade form is not a new idea by any means. Still, it is only during the last few years that home gardeners have come to appreciate the possibilities of this form of growth. A well-grown cascade in full bloom will steal the show in almost any display of garden flowers. As decoration for the home few plants can equal, in my eyes, the graceful beauty of such a mum cascading down four or five feet from living room mantel, table or bookshelf.

Back in 1930, a Japanese named K. Yashiroda wrote an article on cascade mums for an English magazine. Even before that, the Missouri Botanical Garden had attracted considerable attention by its display of these plants. Exceptionally beautiful and easy to grow, they certainly deserve more interest and popularity than they have been given.

In my own experience, the cascade chrysanthemum is little, if any, more difficult to grow than the standard or exhibition type. A bit of extra preparation is necessary to start with; after that there is no trouble at all. Of course, not all chrysanthemums are adapted to this special form of growth. The large-flowered types and others with thick, stocky stems should be counted out. Floriferous varieties with small, wiry stems that are easily trained are the kinds to choose.

Several varieties are so well adapted to cascade growth that they have won recognition as cascade mums. Four of the best are Anna, a single white with gold center; Jane Harte, a yellow sport of Anna; The Real Mackay, an enchanting shade of pink, and Mount Hood, a double incurved white. It was Mount Hood that attracted so much attention at the National Chrysanthemum Show at Birmingham, Alabama, last fall. There are probably many other good varieties, but I have grown these four and can vouch for both their beauty and adaptability.

Cascades are usually grown in pots to facilitate handling and display. The ordinary procedure is to shift them in spring from small, 3 or 4-inch pots, in which they were started, to the next size larger—5 or 6-inch pots. In early summer they are moved again to ten-inch containers. And I have grown lovely plants in one-gallon buckets.

A soil that suits any other type of chrysanthemum should satisfy cascades. I have found that a mixture of two parts garden loam and one part each of leafmold and well-rotted cow manure will keep them happy. If you have a pet formula for mums, then by all means stick to it.

The plants need an early start—February is not too soon [SEE PAGE 122]

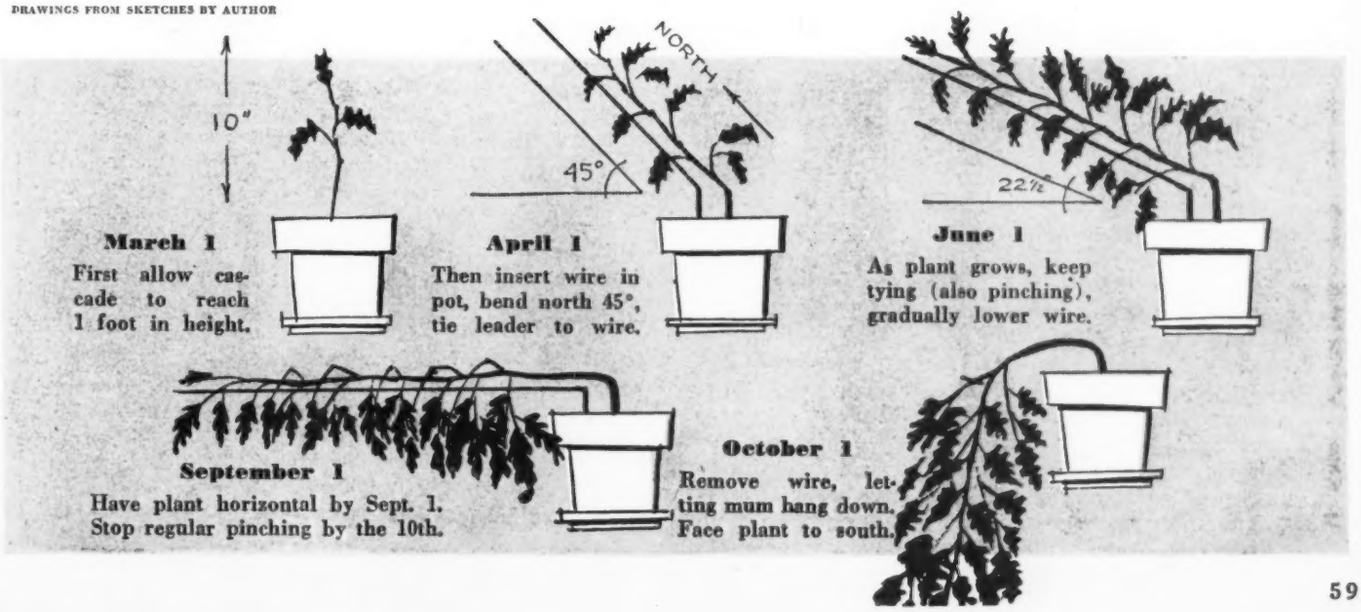
JIM ROBBINS PHOTOS

Unique use for this gay hanging-basket cascade—bedecking a parking-lot post.

The liquid beauty of white mums cascading down 4 or 5 feet is a head-turner!

STEPS IN TRAINING A CASCADE CHRYSANTHEMUM

DRAWINGS FROM SKETCHES BY AUTHOR



Rooting Chrysanthemum Cuttings

[FROM PAGE 58] sand from the pit has proved adequately sterile, while vermiculite and some other trade products are offered as sterile. Of course, peatmoss is not. Sand gives the best support to cuttings and we have found it easier to control for moisture content.

All sorts of containers, from 4-inch flower pots to a 20-foot greenhouse bench with 4 inches of sand, have proved equally successful. Despite long discussions on the proper container, the most convenient will probably answer, whether it is a fruit box or a flat 3 inches deep. If not clean, it may be washed and sunned. We have found that watering from below is most successful, so that foliage is kept dry to protect plants from fungous diseases. The container may be set in a coldframe, a hotbed, on a bench in a greenhouse or on a windowsill. Gravel or cinders underneath the flats may improve drainage, but we have never found it necessary because the rooting media all drain well naturally.

With the growing medium ready, cuttings may be taken as soon as the shoots are 6 to 8 inches above the ground. That amount of growth helps avoid two troublesome diseases—Verticillium and one that is due to leaf nematodes which travel up from the basal leaves and ground by way of water films. If upper leaves are dry these tiny worms do not get around much.

About 2½ inches is the length for mum cuttings, longer or shorter depending on the length of the internode—longer cuttings for longer internodes and vice versa. We make the cut ⅛ to ¼ of an inch below a node. The controversy on whether to cut or to break off the tips is a result of that problematic disease stunt. If one plant is infected, a knife may infect all other cuttings taken afterwards. Breaking helps prevent this. Or a small number of cuttings might be taken "sterilely" by using a different razor blade for each plant.

The same difficulty complicates the matter of dipping the cuttings in a fermate and nicotine sulfate bath of spray strength. If no stunt is present this seems to accelerate rooting and helps keep cuttings free of insect pests and leaf-spot, rust and mildew. But controlling these only to infect all cuttings with stunt is a poor bargain.

One leaf is removed at the base of the cutting—by cutting or stripping, depending on stunt danger. The cut end is dusted with a rooting hormone powder and inserted about one inch in sand or other rooting medium, which is already moistened. Sand is firmed around cuttings, but not vermiculite or peatmoss.

Firming the latter increases the hazard of mold formation and prevents air from getting to the base of the cuttings.

If cutting frames or flats are used, the cuttings may be inserted about 1½ inches apart in rows about 3 inches apart. Four-inch pots take about six cuttings, and other sizes in proportion. For a few plants, the gardener might put cuttings of each variety in separate pots under a single label.

Until cuttings are rooted, the medium is kept moist but not wet—that is, never allowed to dry out, but never soaked enough to promote fungi causing damping off or rotting of the cut end. For bottom watering of a pot the usual clay saucer of the same diameter as the pot holds plenty of water. It is harder to water flats from below. If a watering can or spray is used, early morning is the best time, so that leaves may dry off before nightfall. And the cuttings should not be watered at all on dull, cloudy days. In all containers, excess water should drain off easily.

For fast rooting, air temperatures should be 55 to 60° at night and may run as high as 80 to 85° in bright sunshine. Soil temperature is kept at a uniform 65°. Many varieties of chrysanthemums have rooted for us in ten days under these conditions. If you are using bottom heat for the first time, watch the moisture, for cuttings dry out faster than might be expected.

The leaves need sunlight to produce roots, so do not deny them. Certain growers even permit some wilting before shading the cuttings, but we give some light shade at least for the first four days. Cheesecloth is good, but even newspaper will do. And cuttings rooted indoors should have full ventilation—not in a wind, but in the open where they are protected from drying out. In a coldframe, the glass might be propped up with blocks for air circulation.

Once rooted, cuttings are transplanted with least disturbance when roots are ¼ inch long, or even less. Certainly they should be in soil before roots are ½ inch long. Then there is no need to fertilize the rooting medium. Moving the cuttings to 2½-inch pots or plant bands for ten days prevents the shock of transplanting. Wooden plant bands, treated against rotting, have turned out better for us than paper plant bands.

Potting soil for plant bands should contain some dry or well rotted cow manure—four quarts of dried cow manure plus one 2-inch potful of 5-10-5 fertilizer per bushel of soil mixture. If beds are turned over and well fertilized, starter solutions ought not be necessary.

The length of time it takes chrysanthemum cuttings to reach transplanting stage depends on the variety and condition of the stock plant as well as the treatment they get. Last spring the variety Blanche Pontvine took four times as long to grow roots as did several others under similar conditions. With bottom heat, most varieties should root in about two weeks if everything else is under control. In a coldframe, without bottom heat, the same mums probably need three weeks in the New York area. But then, a spell of cold, cloudy weather will delay rooting, or several warm bright days will speed it up.

And failures occur in the best regulated "nursery." An acquaintance lost all his cuttings one year and was sure he had done everything as usual. A new batch of sand he got that year turned out to be loaded with salt—probably calcium or sodium chloride to lower the freezing temperature of concrete. Fresh sand brought things back to normal. If the problem is a real poser, your County Agent or State Experiment Station may know the answer.

To return to the problem of diseases—clean cuttings may be taken from Verticillium-infected stock. This disease is caused by a fungus which consists of a mass of fine white threads, the micellium. These threads grow upward through the stems, and during rapid growth of stolons, or branches, the fungus lags behind. Thus the tip of the branch is usually free of disease after the fast growth of early spring.

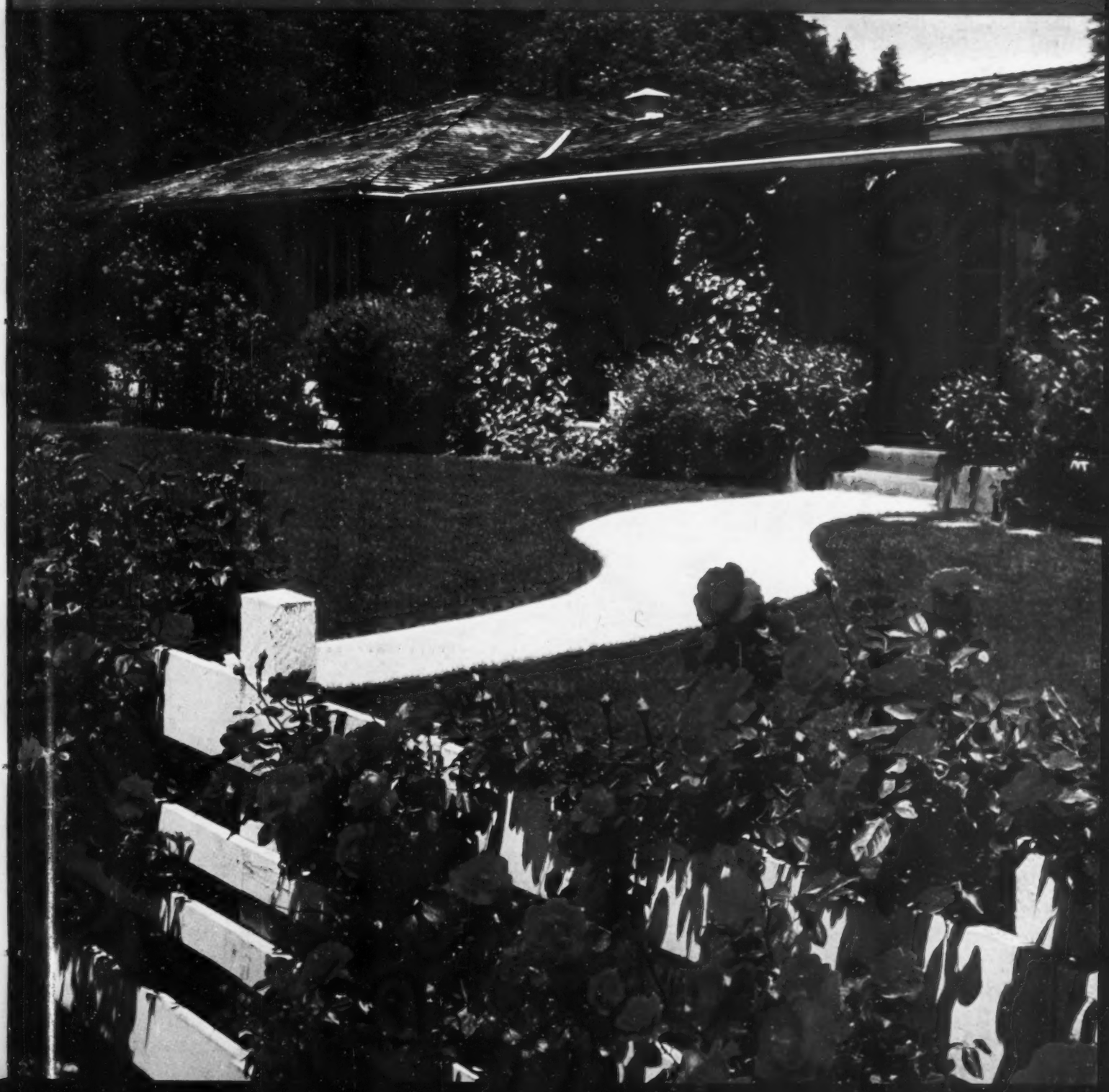
Stunt, though now largely eliminated by the big commercial growers, has invaded varieties sold to gardeners. Stunt-infected plants have to be "rogued" rigorously in fall, or as soon as the disease is suspected. Since there is a delay between infection and symptoms, even if there are no signs of stunt at cutting time in spring, new plants may develop the symptoms before the season is out. The virus is spread by anything that touches an infected plant, even by sucking insects. So the only answer is to be on the watch for symptoms of stunt, then burn the infected plants.

During some years, spring growth on mums starts early and the shoots bid to become too tall before cuttings are wanted; or perhaps more cuttings are needed than seem to be formed. If tips are pinched out above four or five leaves, each shoot should yield two or three good cuttings about a month after the pinch. As for the choice between fat cuttings and thin, we have found that the thin ones are apt to root faster and more abundantly than the fat ones. In spite of the widespread belief that cuttings from old stems are more likely to set spring flower buds and have other faults, we have never observed them. Setting of spring buds is usually due to running the stock at too high a temperature.

In spite of all these possible problems, don't borrow trouble. Taking cuttings from chrysanthemums has never seemed difficult to us, and we've grown thousands and thousands with scarcely enough losses to mention.▶

better SOIL *better garden!*

A SPECIAL *FLOWER GROWER* FEATURE ON SOIL MANAGEMENT FOR HOME GARDENERS



MEET THE NEWEST MEMBER OF A FAMOUS GARDENING FAMILY

new instant VIGORO*

COMPLETE PLANT FOOD IN WATER SOLUBLE FORM

America's favorite plant food is now available in *two* forms. There's famous regular Vigoro. And—for those who prefer a liquid plant food—new Instant Vigoro, complete plant food in water soluble form.

You simply mix this new type Vigoro with water and sprinkle it on—as easily as you'd water the lawn or garden.

In a matter of *days* you can see results. Instant Vigoro dissolves immediately. It's ideal for transplanting, for supplemental leaf and soil feeding. Mixed with water, it makes nutrients instantly available for plant use, thereby speeding vital growth.

Like regular Vigoro, Instant Vigoro has been proved to contain *all* the food elements plants need. So whether you apply Vigoro in dry form or Instant Vigoro in liquid form, you are *sure* of the results that come only from feeding *complete* plant food . . . beautiful, deep-rooted lawns . . . fine, healthy flowers . . . and mineral-rich vegetables.

Get Instant Vigoro from your regular Vigoro dealer.

** Vigoro is the trade-mark for Swift & Company's complete balanced plant food.*

Tiny concentrated crystals that dissolve in water and provide complete, instant feeding action.

Can be used directly on leaves (even on exposed roots) because it's applied as a liquid.

Like regular Vigoro, new Instant Vigoro is so complete it can make plants grow and thrive even in plain sand.

Like regular Vigoro, it's perfect for flowers, lawns, vegetables, trees, shrubs.

Feeding Instructions: *For foliar (leaf) feeding:* Mix one level tablespoon of Instant Vigoro to gallon of water and wet leaves thoroughly. *For soil application:* Mix two level tablespoons of Instant Vigoro to gallon of water and apply to 12 square feet of area. *For applying through water hose:* Make a concentrated solution of four ounces of Instant Vigoro per pint of liquid to be metered through the attachment.

better SOIL *better garden!*

A garden is truly a miracle. From the warm colors and the pleasant scents to the special pleasures of watching things grow, you have a hundred kinds of wonder. You choose and arrange plants from an infinite variety—many of them special miracles of plant breeding. Then the sun and your skill work together; you have only to look at a picture like the frontispiece of this section, or to remember a sun-warmed morning in the garden, to start making plans.

The factor which brings all these things together, the soil, is fortunately one that you can do much to control. In this special section of FLOWER GROWER you can take a look at the soil's physical structure, and the way new products and new knowledge give you advantages, in the article "The Condition of Your Soil." As every gardener knows, soil workability, moisture and other conditions (called tilth) help to make possible the utilization of nutrient elements, the so-called plant foods. In "The Plant Foods in Your Soil," John Asch writes about these chemicals and the news of the last few years that now enables gardeners to use them more wisely.

Further on, you can take a look at "How to Modify Your Soil to Grow Your Favorite Flowers," a picture spread for beginners to learn how easy it is to become a special-interest hobbyist.

A unique artist's illustration of four cross-sections of soil (ranging from 20 feet down to a life-size 5 inches) gives you helpful pointers on the inter-relationships of "Drainage, Water, Soil-Working, Mulching." Another pictorial spread gives useful facts on "Hand Tools and Power Tools." And still another—a sort of bird's eye view of a garden with an impossible variety of soils—gives you, in the center spread, a list of more than 100 plants for special soil conditions. It is called "For Any Soil—There's a Garden."

Other parts of this special feature include "Questions and Answers" on soil by Dr. P. P. Pirone and the "Gardeners' Guide" to soil products and tools, a FLOWER GROWER directory of products for every aspect of soil management.

the condition of your SOIL

SOILS VARY WIDELY. THEIR CHARACTER IS DETERMINED BY THEIR HISTORY—PHYSICAL, CHEMICAL AND BIOLOGICAL. THE ANSWER TO PROBLEM SOILS: SYNTHETIC CHEMICALS OR ORGANIC MATERIALS.

If you had a razor-sharp spade and could slice neatly right through plants and earth, you would get a cross section of soil something like the ones pictured on the opposite page. Every gardener knows what such a soil profile looks like. Every gardener, indeed, knows that the *kind* of soil he has, and what he does to it, determine how well his garden grows.

In the drawings you see a rose and chrysanthemum and their roots and rootlets, which draw water and nourishment from the soil. (The two plants are separated by the artist's white line because they would not actually grow this close together.) In these three magnified cross sections, you can also see (1) how soil is composed of particles of sand, clay and silt, as well as organic matter, water and air, in varying proportions; (2) how soil particles, as aggregates, cluster around root hairs; and (3) how chemical soil conditioners cause the formation of artificial aggregates, which resemble stacks of pancakes. For the sake of simplification, the artist left out a few million plant rootlets and root hairs. But they are there, in your garden soil, and they need the right soil conditions if your plants are to thrive.

This article will cover in some detail the composition, structure and formation of soil and what the gardener can do to improve "problem" soil.

The earth is not a single substance, the same everywhere. Some soils are light, others dark. In one place water remains a long time after a rain; in another, it dries out quickly. Soil on a rocky hillside is quite different from that in a river bottom. Right here, indeed, is the clue to this great variety in soils. It is the history of the soil (physical, chemical and biological) that explains its condition or character.

When we look into an open ditch or a cut made for a road, we see several distinct layers, which are called *horizons*. These are shown in the illustrations on page 60. The soil in these layers is composed of four kinds of substances:

1. Mineral matter (such as sand, silt, clay and stones) derived from rocks but altered by decomposition.

2. Sea shells and plant and animal skeletons—or, in scientific terminology, calcium carbonate, phosphate and resistant compounds derived from long-dead organisms.

3. Remains of plants and microorganisms (both plant and animal) recently added to the soil. In this group are last year's mulch with its decaying roots, leaf particles and other plant matter, as well as humus and other organic material.

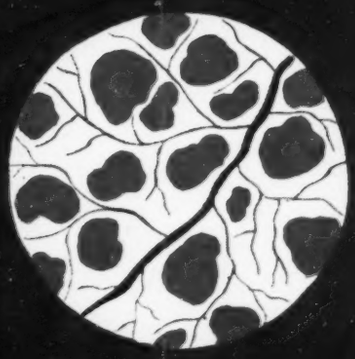
4. Soil water, which contains, among other things, the soluble salts of many minerals. This portion of the soil in solution is what scientists, appropriately enough, term the *soil solution*. Under temperate, humid conditions the soil solution is extremely dilute, but under some arid conditions and with poor drainage, it may become very concentrated. The badlands of the West are an example of the latter condition. There crystallized salts are so concentrated they spoil the soil for cultivation of plants.

Even though you may have a good practical knowledge of soil and its uses, chances are you would be amazed to see its structure under a microscope. Good garden soil is a mass of solid mineral particles interconnected by channels (or pores) filled with air and water. The size of the mineral [SEE PAGE 129]

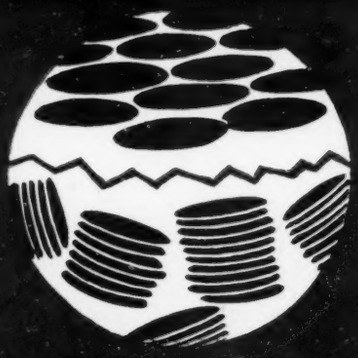
TILTH

- Good absorption and holding of rainfall
- Air supply within the soil
- Low resistance to root growth
- Good balance of pore-space volume
- Easy working for planting, mixing in conditioners and plant foods, and cultivation
- Promotion of soil-organism activity and proper release of plant foods

If you could see what soil is made of, magnified perhaps 200 times, you would note large, sharp shapes of sand (tan areas), smaller (brown) particles of silt, and minute specks of clay. Triangles represent decaying vegetable matter. Air spaces are white, and gray blobs represent water film, which also surrounds the root hair, shown in silhouette.



If you sliced the end of a root, magnified 10 times, you might see these rootlets and root hairs branching out in this fantastic absorbing surface. Small specks represent aggregates of soil, which cling together naturally in properly balanced soil. Below, in an immensely magnified representation, you can see (top) how clay particles crowd together to form hard, compact, "heavy" soil, and (bottom) how a chemical soil conditioner makes these separate clay particles group into pancake-like aggregates. Result: workable and wettable soil.



the plant foods in your

HERE IS A GOOD LOOK AT THE ELEMENTS ALL PLANTS USE, AT GOOD GARDENING PRACTICES, AND AT ANSWERS TO CURRENT QUESTIONS ON NEW DEVELOPMENTS

Every good gardener is asked questions by his neighbors. Among the questions on plant nutrients that you're likely to be asked in these days of chemical miracles are these:

"What's the difference between spreading a bag of a complete plant food on my garden and raking in old-fashioned manure?"

"Why are chemical fertilizers called plant foods anyway? Is this correct?"

"How do you tell if a plant is deficient in nitrogen?"

"What are the good points of liquid plant foods?"

The facts in this article are intended to help answer questions such as these. They are also intended to present a basic background on plant nutrition.

In the article on "The Condition of Your Soil" (page 64) it was explained how proper physical condition of soil enabled a plant's roots to absorb water and chemicals in solution. But this fact by itself, taken too literally, would give an incorrect impression. The truth is broader: green plants synthesize their food from simple substances taken out of both the air and the soil. It is common to speak of these simple substances as the plant's food. It would be more correct to say the plant's *raw* materials or nutrients. But elsewhere in this article, and elsewhere in FLOWER GROWER, you will find the phrase "plant food" used in the everyday sense, that is, to mean the essential nutrients drawn from the soil.

Still looking, for a moment, at all the raw materials, let us see what a plant's tissues are made of: carbohydrates, fats, proteins, minerals, and, for the functioning of their tissues, a host of enzymes.

Chemically, then, the plant needs large quantities of the following elements: carbon, oxygen, hydrogen, nitrogen, phosphorus, and potassium for building up its tissues. It needs small quantities of sulphur, iron, magnesium, calcium, manganese, zinc, copper, boron and molybdenum for building up its enzymes and other processes. Other elements, such as silicons, aluminum, iodine and chlorine, *may* be necessary. They are found in the tissues of plants, at least.

Where does the plant get these raw materials? Carbon and oxygen from the air, and water from the ground, are probably the sole source of carbon and hydrogen in most plants.

Most of the other elements are taken from the soil, as simple inorganic ions, to use a scientific term. There is one noteworthy and interesting exception: leguminous plants, because they are hosts to nitrogen-fixing bacteria, can also get nitrogen from the air, where there is plenty of it.

HOW PLANTS RENEW THE SOIL

So, as of course most people know, several of the basic elements come from air and water. The rest come from the soil. In a virgin forest or plain, of course, constantly decaying plants would renew the elements in the soil. In a garden, where man has upset nature's balance, it is necessary to add at least the main elements in two ways: (1) by adding organic material—mulches, manures, compost and humus—which also makes the physical properties of the soil what they should be, and (2) by adding plant foods, chemical fertilizers, either in ready-mixed form or, under certain circumstances, as special additives for special purposes:

Let us take a look at the three main chemicals first. Anyone who has been gardening long has seen labels such as 5-10-5 on a bag of plant food. Most people know that this stands for 5 per cent available nitrogen, 10 per cent phosphorus, and 5 per cent potassium. The remaining 80 per cent is "inert" material to help spread the plant food evenly, although it often contains at least some of the trace elements (see below) as impurities.

The first major element in a fertilizer formula is nitrogen. It is essential for plant growth as it is a constituent of all proteins and hence of all protoplasm.

A chemist would say that the plant absorbs nitrogen either as ammonium or nitrate ions, generally speaking. Then as the nitrogen supply of the plant is increased, the extra protein allows the leaves and what are called growing points to make more cells and grow. By this means the foliage is also enlarged and a larger surface becomes available for photosynthesis. The sunlight can thus be utilized in the manufacture of more food, better and larger tissues, roots, stems, flowers, and fruit.

In simplified form, this explains why nitrogen is said to be the building or growth element of the plant world. Provided this isn't overdone, it is vital to the whole plant.

WHEN NITROGEN IS LACKING

A plant that is suffering from too little nitrogen, as many gardeners know very well, has leaves that are harsh, fibrous, and pale. More nitrogen darkens the green color of the leaves. Adding nitrogen makes leaves green longer, lengthens the life of the growing season, and delays the onset of maturity. Too much leaf development, of course, means that the leaves are growing at the expense of the flowers. In a moment we'll take a look at this problem of balance.

When you buy a plant food, the nitrogen may be in the form of nitrate, or ammonium. Don't let the technical details about which one to use worry you. If it is nitrate it will be more rapid in action. If it is ammonium it will decompose to ammonia in the soil, and change to nitrate as rapidly as it is formed. For most purposes you'll find the manufacturer is putting the right form of nitrogen into the plant food, for fast or slow action, or both.

The second element in that numerical sequence is always phosphorus. (Here's a tip: if you can't remember the order of

SOIL

by *JOHN ASCH*
AUTHOR OF "THE STORY OF PLANTS"

the three elements in fertilizer, write them down and put them in alphabetical order. Then you'll be right.) If there's one thing you can say about phosphorus it is this: it is a sort of governor. It is in the cell nucleus. It plays a fundamental role in the enzymic (or governing) reactions in the plant. It is essential for cell division, and therefore for the development of growing tissues.

Many soils are deficient in phosphate. The plants use it up rapidly. But it is harder to diagnose in a plant: often there are no obvious signs. Stunted growth, at times, is a symptom.

The third in the trio is potassium. (Potash is potassium carbonate.) At certain times when plants, such as dahlias, should have extra potassium, an easy way to feed them is to give a regular plant food plus extra potassium in the form of wood ashes. Potassium is essential to a plant's nutrition, in color, and in juices, and it is often in short supply in the soil. It can really limit a plant's growth—yet unlike nitrogen and carbon it is not a part of the plant's fabric. Rather, it plays a part in the plant's processes. It is important in the *usage* of nitrogen. A lot of nitrogen and too little potassium will result in killing the plant's tissues.

Sign of potassium deficiency: if the concentration of nitrogen and phosphorus has been increased and the leaves of the plant die prematurely.

THE OTHER ELEMENTS

So much for the Big Three: nitrogen, phosphorus, and potassium. Elsewhere you will find suggestions about the use of organic fertilizers and their very essential supplements, chemical plant foods. In the Gardener's Guide, starting on page 75, you'll find facts on specific products. But now let us take a look at some of the other elements that plants use. Most of these are found in sufficient quantity in many but not all soils. Many of them, as trace elements, just come along with the extra stuff in any bag of plant food. In quite a few cases they can be and should be added to the soil.

Sulphur: an essential constituent of proteins. The best known deficiency disease due to lack of sulphur is "yellows," often in leguminous crops. Gypsum is a very good source of sulphur. Sulphur added to an alkaline soil also helps to make it more nearly neutral. (Elsewhere you will find an explanation of acidity and alkalinity and its importance in the soil.)

Calcium: essential for growing tissues, particularly for the growth and functioning of root tips, cell walls, and in leaves. In this respect it is not unlike calcium in the skeleton of an animal: it is part of the sturdier sections of plants.

Calcium deficiency typically occurs in acid soils, although the harmful effect of too acid soils is often due to causes other than calcium deficiency. There can also be a calcium deficiency in alkaline soils that are high in sodium.

Calcium deficiency, as you might suppose, can cause a stunting of the root system, and it can also cause a characteristic sickly appearance in leaves. There are also indirect effects: allowing other substances to accumulate in the tissues and to lower the vigor of the plant. High levels of calcium do not harm most plants directly, but they *can* slow down the intake of magnesium and potassium.

Magnesium is needed by all green plants because it is a constituent of chlorophyll. Magnesium is to the plant world what iron is to the red blood corpuscles in the animal world. It plays a part in the transportation of phosphate within the plant. It therefore can help the plant absorb phosphates; indeed, magnesium silicates are often added to fertilizers to increase the effectiveness of superphosphates.

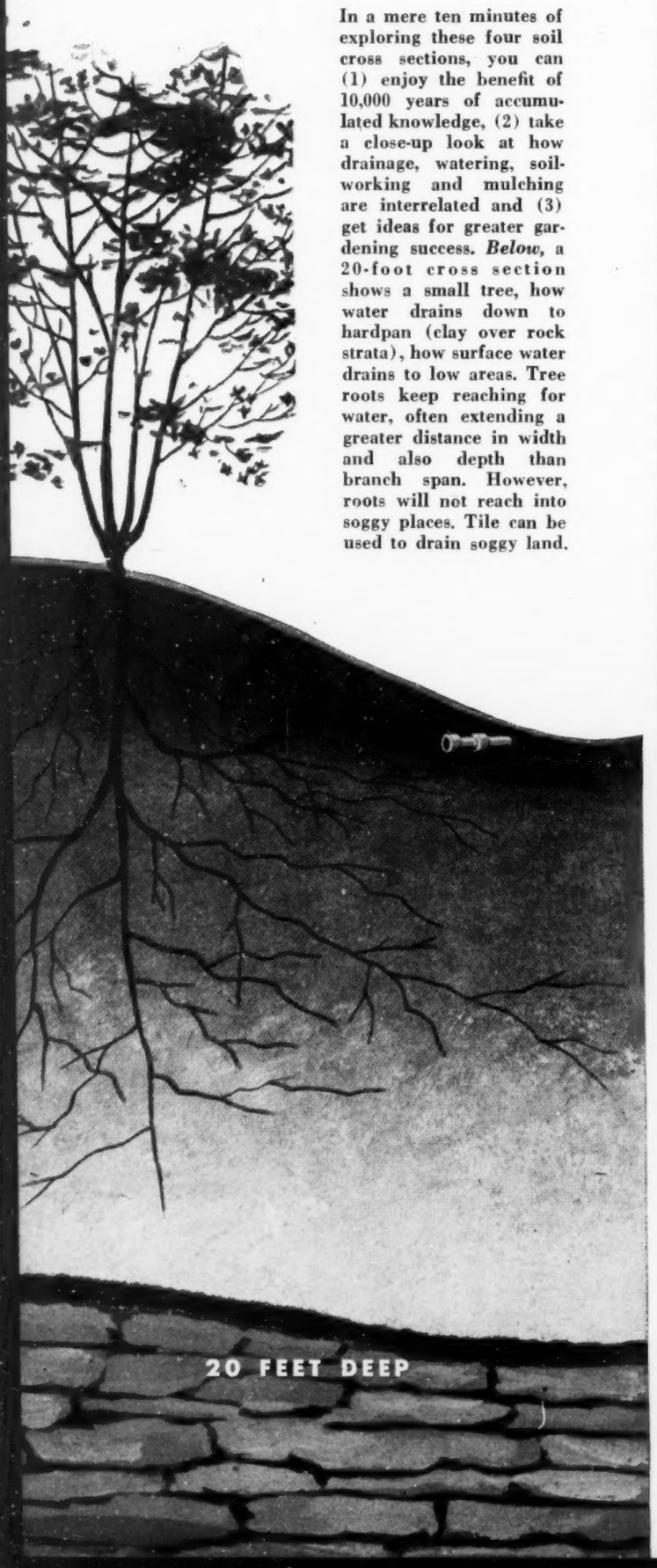
Sodium does not seem to be an essential element for any crop, yet it sometimes seems that certain plants grow better in the presence of sodium.

Silicon, in the form [SEE PAGE 126]

ADDITIONAL SOIL FEATURES ON FOLLOWING PAGES

Drainage

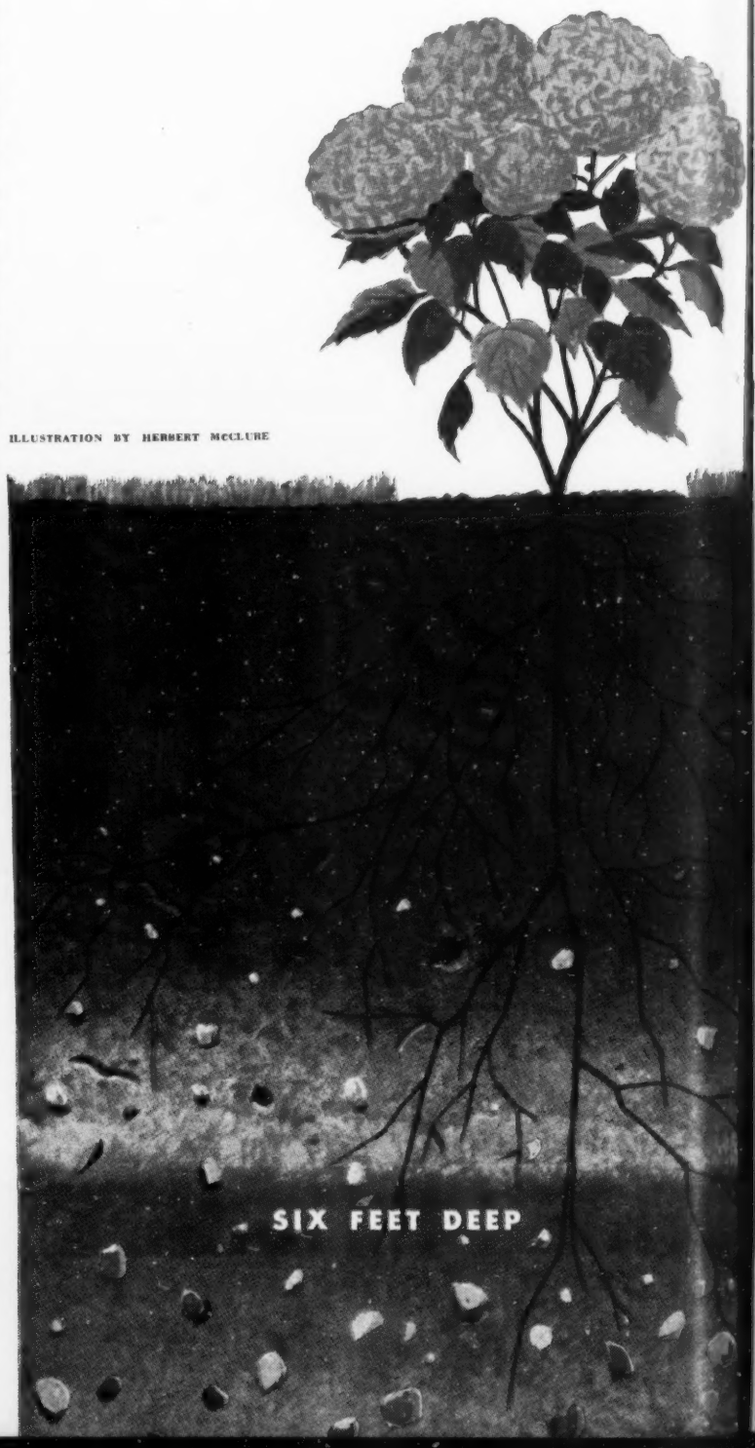
In a mere ten minutes of exploring these four soil cross sections, you can (1) enjoy the benefit of 10,000 years of accumulated knowledge, (2) take a close-up look at how drainage, watering, soil-working and mulching are interrelated and (3) get ideas for greater gardening success. ***Below,*** a 20-foot cross section shows a small tree, how water drains down to hardpan (clay over rock strata), how surface water drains to low areas. Tree roots keep reaching for water, often extending a greater distance in width and also depth than branch span. However, roots will not reach into soggy places. Tile can be used to drain soggy land.



Watering

Two days of soaking rain or its equivalent applied with the hose might penetrate only 18 inches of this 6-foot cross section. (See dark, "wet" area.) Good soil holds more water and for longer time. It also contains nutrients, the majority of which are most readily available to plants when in solution. Here, hydrangea roots have probed for water clear through topsoil area. In long, dry spells, roots absorb moisture stored many feet down at permanent water table level (gray area). Good soil permits roots to reach this permanently saturated area.

ILLUSTRATION BY HERBERT McCLURE

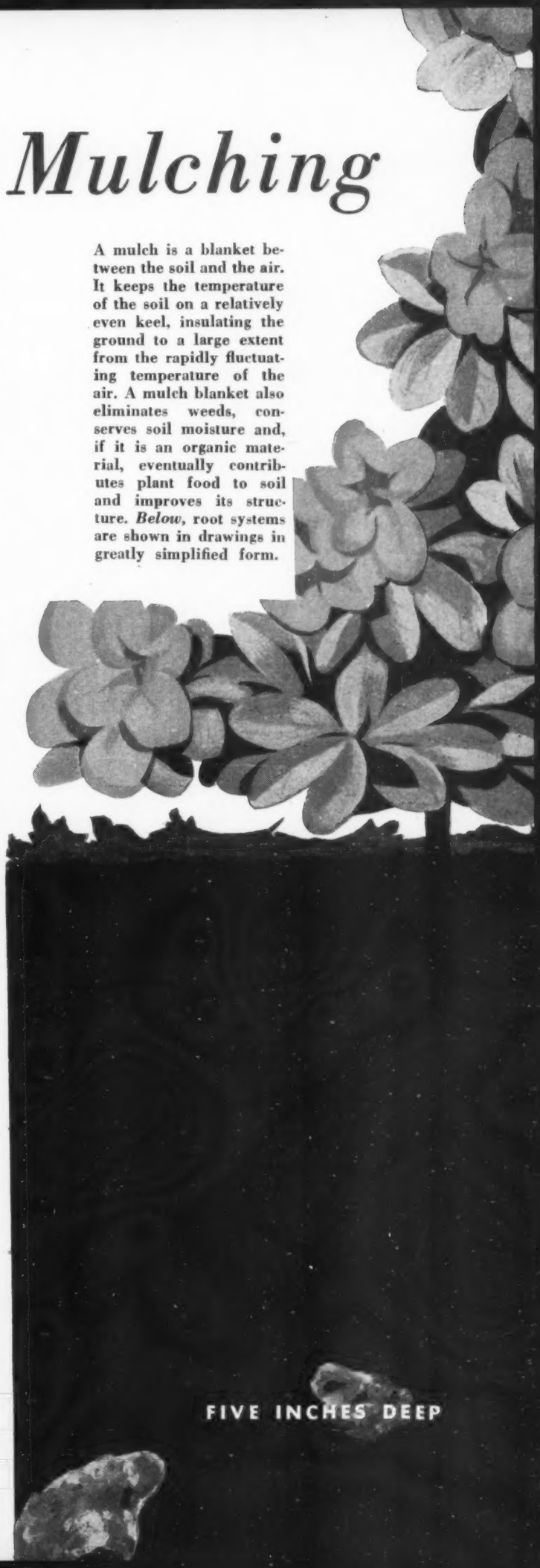


Soil-Working

Soil working starts long before planting with the mixing of foods and conditioners into soil. Occasional cultivation after planting prevents weeds from robbing plants of water. It also loosens surface crust, allowing water and air to penetrate, and provides a dust mulch. The main danger in cultivation is damage to the roots of plants. Plants with long fine roots such as the dahlia in picture *below* are particularly susceptible to such injury. Here, a wise gardener wields hoe carefully to keep from damaging plant's feeder roots.

Mulching

A mulch is a blanket between the soil and the air. It keeps the temperature of the soil on a relatively even keel, insulating the ground to a large extent from the rapidly fluctuating temperature of the air. A mulch blanket also eliminates weeds, conserves soil moisture and, if it is an organic material, eventually contributes plant food to soil and improves its structure. *Below,* root systems are shown in drawings in greatly simplified form.



how to modify your SOIL *to grow your*

DAHLIADEL NURSERIES

DAHLIA

TYPE OF SOIL: If drainage is good, dahlias will thrive on a wide variety of soils. A fertile medium loam suits them best. Heavy clay is unfavorable, but can be made suitable by adding gritty cinders or sand and rotted manure, compost, leafmold or other organic material or a chemical soil conditioner. Sandy soils can be improved by addition of green manures or organic fertilizers.

PLANTING INSTRUCTIONS: After frost danger is past, dig a hole 6 inches deep and place stake. Set tuber horizontally, eye upward and towards stake. Cover tuber 2 or 3 inches at first, drawing in more soil as the shoot grows.

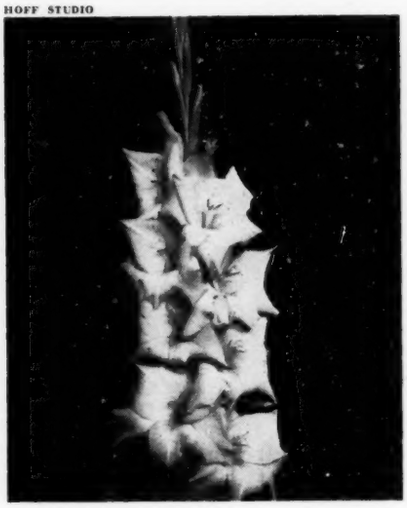
FERTILIZERS: Manuring or fertilizing in the hill while planting is not recommended as it may injure the tuber. Surface feeding of bonemeal is best applied after the plants have made a good start.

WATERING: If weather is dry during blooming period, water dahlias thoroughly once a week so that water sinks down at least a foot deep.

pH: Tolerant of a slightly acid soil, pH 5-7.

CULTURAL SUGGESTIONS: In latter part of August, feeding dahlia roots will be close to soil surface, so do not cultivate in late summer or fall.

HOFF STUDIO



GLADIOLUS

TYPE OF SOIL: Any good, well-drained garden soil will do, but glads are most partial to sandy loam.

PLANTING INSTRUCTIONS: After danger of frost is well past, plant corms 3 to 6 inches deep, depending upon size, the larger the deeper. It is essential to plant glads in a different place each year (rotation) to prevent the spread of soil-borne diseases.

FERTILIZERS: Commercial fertilizers rich in potassium, such as 4-8-12, are preferred. Do not use much bonemeal or superphosphate. During the growing season, when plants are about 6 inches high, give ammonium sulphate dressing at the rate of about ½ pound per 100 feet of row.

WATERING: Glads like plenty of water, but must be grown in well-drained soil. Soak ground during dry spells so water penetrates to a 12-inch depth.

pH: Glads are tolerant of slightly acid to slightly alkaline soil, pH 5-8.

CULTURAL SUGGESTIONS: Either keep surface of soil well loosened at all times or apply an organic mulch after the first shallow cultivation. Dig corms after first frost. Dust against thrips with 5 per cent DDT before storing.

ARMSTRONG

ROSE

TYPE OF SOIL: Clay loam is ideal, but roses grow well in any average, reasonably good soil. Good drainage is essential and location should have at least 40 per cent sunlight.

PLANTING INSTRUCTIONS: Prepare soil well before planting. Spade deeply, at least 1 foot, and turn under ¾ inch layer of rotted cow manure, compost, leafmold or humus, plus ½ pound bonemeal to each square yard. In cooler regions, set plant so that bud union is 1 inch below surface; in warmer regions so that it's 1 inch above surface.

FERTILIZERS: Special rose food or any "complete" commercial fertilizer. Feed in early spring and two or three times, depending on soil fertility, during summer until end of July.

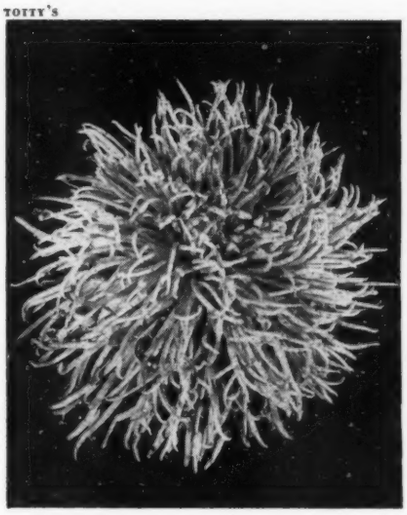
WATERING: Don't let roses lack moisture. In dry weather soak soil to 8 inches deep every week. Don't wet foliage in late afternoon.

pH: Slightly acid to neutral, pH 5-7.

CULTURAL SUGGESTIONS: Keep soil surface shallowly cultivated or use a mulch. Spray every 10 days to two weeks with all-purpose spray to control insects and diseases.

FAVORITE FLOWERS

TOTTY'S



CHRYSANTHEMUM

TYPE OF SOIL: Any fairly light, well drained soil is satisfactory. Heavy soils may be lightened with organic matter or chemical soil conditioners.

PLANTING INSTRUCTIONS: Rooted cuttings or divisions may be set out any time during spring, but keep them well watered if planted after warm, dry weather has set in. Soil should be well worked and fertilized before planting.

FERTILIZERS: A constant supply of nutrients is important, but overfeeding can prove harmful. Little and often is better than too much once in a while. Standard "complete" plant foods are generally satisfactory.

WATERING: Mums are shallow rooted and so water supply should be watched during dry periods. Water heavily *before* plants wilt.

pH: Slightly acid to neutral, pH 5-7.

CULTURAL SUGGESTIONS: A mulch an inch or so deep will make cultivation unnecessary and will conserve soil moisture. If you cultivate, be sure not to go too deep or you'll injure the mum roots. Regular spraying or dusting with an all-purpose insecticide-fungicide is usually necessary for top quality blooms.

TUBEROUS BEGONIA

TYPE OF SOIL: Organically rich loam that drains well. For potting mixture, use 2 parts sharp sand, 2 parts loam, 2 parts leafmold or humus, ½ part cow manure, plus a 5-inch flowerpot of bonemeal to each bushel of mixture.

PLANTING INSTRUCTIONS: Best results obtained by starting tubers in slightly damp (*not* wet) peatmoss in warm place indoors between January and March. After warm weather arrives, move plants outdoors (in large pots or in open ground) in location that is continuously, but not too heavily, shaded.

FERTILIZERS: Begonias are heavy feeders and weekly feeding with liquid fertilizer—in light dosage—is advisable.

WATERING: Never allow plants to suffer from lack of water. Tuberous begonias have very shallow root system and so constant attention to surface moisture is essential.

pH: Acid soil required, pH 4.5-6.

CULTURAL SUGGESTIONS: Planting in soil known to be disease and insect free, or soil sterilization well in advance of planting, is recommended. When growth stops in fall—or before frost—withhold water, dig tubers, wash off soil, dry well, and store in cool, dry place.

BOCHE

AFRICAN VIOLET

TYPE OF SOIL: Rich loam. Potting mixture made up of 1 part sharp sand, 2 parts loam, 1 part leafmold or humus, ½ part dried cow manure. Add a 5-inch flowerpot of bonemeal to each bushel of mixture.

PLANTING INSTRUCTIONS: Mature plants require a 5- or 6-inch pot. Set plant in soil up to point where lowest leaves join crown or main stem. Press soil firmly around plant.

FERTILIZERS: Light application of complete liquid plant food every three weeks when plants are in active growth.

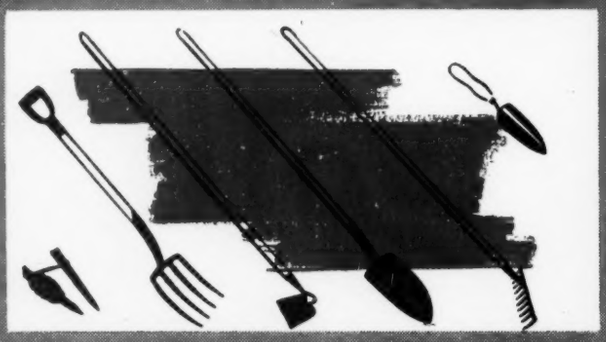
WATERING: Proper watering is important to success. Water only when surface soil feels dry to your fingertips. It is best to water from the bottom by setting the pot in a bowl of water until the surface soil becomes moist. Lukewarm water should be used. Leaves may be syringed with a very fine spray, but keep the plant out of sunlight until leaves are dry.

pH: From slightly acid to slightly alkaline, about 5.0 to 8.0.

CULTURAL SUGGESTIONS: Keep plant in a window which receives some morning sun. A temperature of 65° to 70° is best, with no more than a 10° drop at night. Remove old leaves as they yellow.

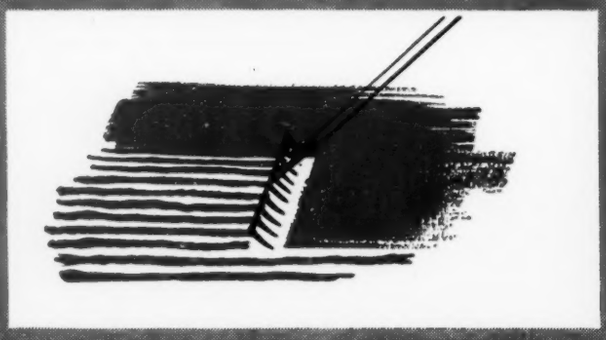
working the SOIL

HAND TOOLS

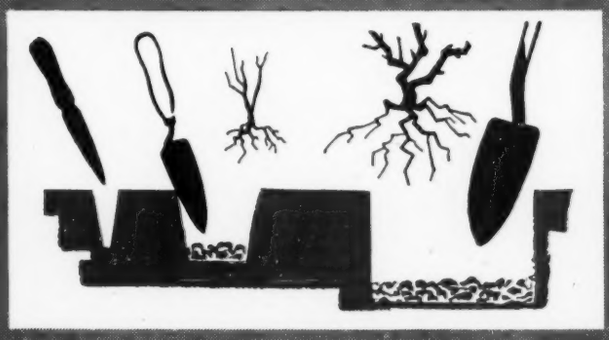


GARDENING BEGINS with the working of the soil. Hence soil-working hand tools are basic equipment. Most important are a digging fork, hoe, long handled shovel, iron rake and trowel. Line, left, insures straight rows for planting.

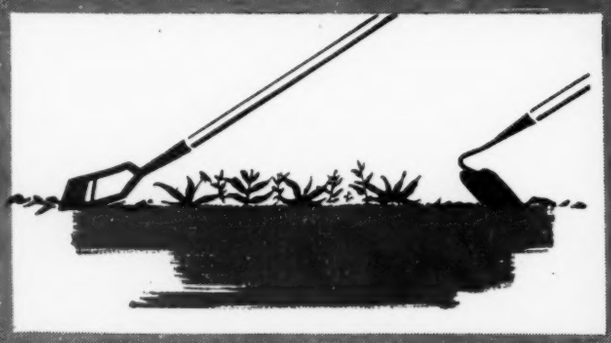
TURNING THE SOIL starts the chain of garden operations. Dig full depth of fork, break up clods and remove stones. Plant food and organic matter should be spread on surface and mixed well with soil in this initial process.



CAREFUL RAKING levels soil surface (thus equalizing water penetration and drainage), removes small stones and debris, and pulverizes the surface soil for planting and seed sowing. In lawn making, rake fertilizer into top inch.



FOR PLANTING annuals, vegetables or small to medium size perennials, use trowel; for the larger perennials, roses, shrubs and trees, use shovel to make hole large enough for all roots. Break up soil at bottom and mix in plant food.

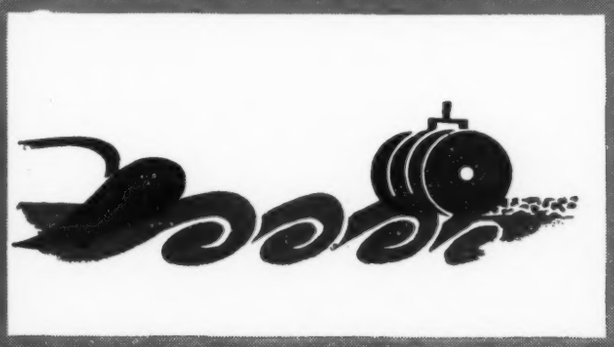


SURFACE CULTIVATION with scuffle hoe, left, or standard draw hoe controls weeds and prevents soil crusting, thus allowing quicker water penetration. But keep your hoeing shallow or you'll risk injury to roots of plants.

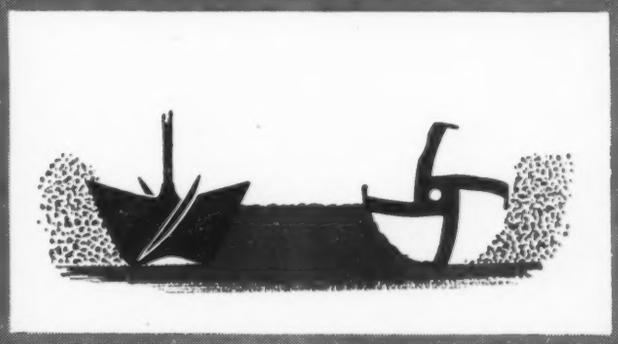
SPECIAL PURPOSE TOOLS are needed as gardening advances and special jobs multiply. Use a Warren hoe for making furrows, pronged or wheel cultivator for plants in rows, hand cultivator for small space, spiker for lawn.

To garden is, first, to work the soil. And the way the soil is worked—and with what tools—has a lot to do with the success and pleasure of one's gardening. Good tools, properly used, reduce the "work" of gardening and contribute greatly to the health and productivity of cultivated plants. Here are shown the main phases of gardening with both hand and power tools.

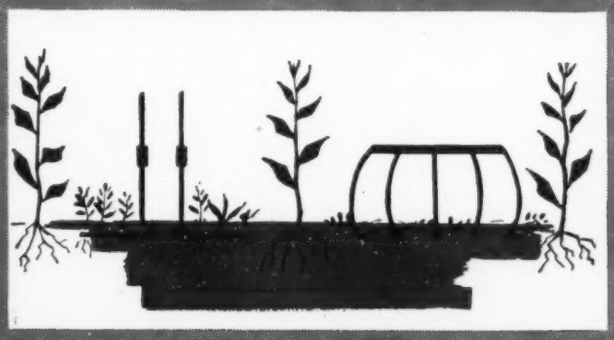
POWER TOOLS



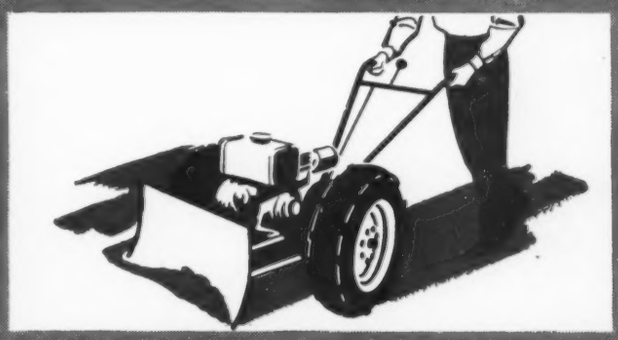
POWER TOOLS lessen work and increase speed of soil preparation. Garden tractor with plow turns soil and mixes in fertilizer, manure or soil conditioner. Harrow smooths surface for sowing or planting. Many sizes are available.



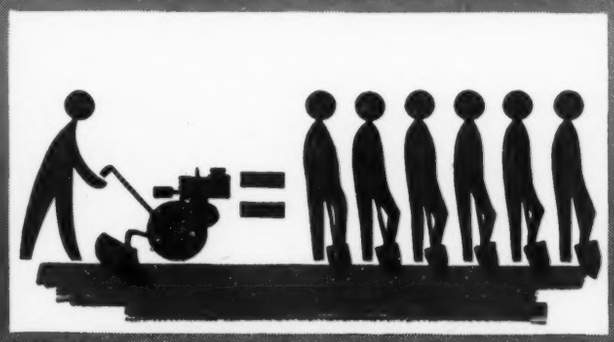
MODERN ROTARY plows and tillers turn, pulverize and level soil in one operation. Small models for home gardens, developed since World War II, have been largely responsible for fast swing to power tool use by American gardeners.



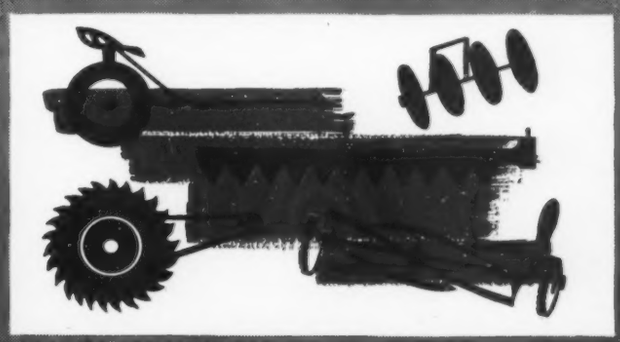
CULTIVATOR ATTACHMENTS for garden tractors include weeding knives, left, and various kinds of toothed or pronged cultivating tools. Weed control and surface tillage are same as with hoeing but take much less time.



GRADING LAND to make a new garden or lawn is hard work with wheelbarrow and shovel but easy with tractor and "bulldozer" attachment. Same device can be used for snow removal, topsoil moving, trench filling and other purposes.



WITH A TRACTOR, depending on its size and the size garden, one man does work of 4 to 12 men with hand tools, which means you can do 4 to 12 times as much work, or same work in ¼ to 1/12 time, as you can if you work by hand.



MANY AUXILIARY attachments make tractor a complete home power unit. Among them are lawn mowers, sickle-bars, saws, trailers, sulkies, snow blowers, sprayers, fertilizer spreaders, seeders, furrowers, hillers, posthole diggers.

Questions & Answers on SOIL

by P. P. PIRONE

Here are more than 50 Questions and Answers on soil and gardens, especially selected for FLOWER GROWER'S "Better SOIL—Better Garden" feature, and excerpted from a notable book by Dr. P. P. Pirone, plant pathologist of the New York Botanical Garden. The book, "Modern Gardening," was published in 1952 by Simon and Schuster. Copyright 1952 by P. P. Pirone.

Q. *Is cultivating (stirring the soil) necessary to control weeds?*

A. No. Cultivate only when weeds are germinated. In dry spells excessive cultivation results in greater loss of water since stirring the soil brings up moist soil which soon loses its moisture. Such soil would hold much of its moisture if left undisturbed. During wet spells, more frequent cultivating is justified, since it not only controls weeds which abound in such weather but also allows more air to enter the soil.

Q. *What kinds of plants can I use to prevent the soil washing down a 3-foot slope?*

A. Plants that creep, such as ajuga, sedum, pachysandra, ivy or myrtle.

Q. *When should I remove the soil hills which protected my roses all winter?*

A. When tulips and daffodils are well out of the ground or when there is no danger of the temperature falling below 20° F.

Q. *Why is some soil acid, some alkaline and some neutral?*

A. What the soil reaction will be depends largely on the amount of rainfall. In regions of high rainfall, the carbonates are carried away in the soil drainage water and the alkaline elements are replaced by hydrogen (acid) ions from the water.

Where little rain falls, the carbonates in the soil remain on or near the surface. This results in neutral or alkaline soil. In the prairie states, which lie between areas of high acidity on the east and high alkalinity on the west, the soil is virtually neutral.

Q. *What fertilizer practice should I follow in my strawberry bed?*

A. For the first growing year apply about 2 pounds of 5-10-5 commercial fertilizer per 100 square feet in two equal doses, that is, put on one pound in April and another pound during June. If your soil is loamy, no additional fertilizer is necessary for the second (fruiting) year. If you have a sandy soil, add one pound of 5-10-5 in February or early March of the second year.

Q. *I have access to a good supply of corncobs. Can I use these in my garden in any way?*

A. Yes, corncobs make an excellent mulch for plants such as roses and tomatoes. They do not contain enough nitrogen, however, to supply the needs of the bacteria which decompose them. Unless additional nitrogen is added to the soil covered with the cobs, the microorganisms will use up what nitrogen is in the soil at the expense of the plants. Therefore it is suggested that extra nitrogen be added at the time or soon after the corncob mulch is added. Use either one pound of nitrate of soda per 100 sq. ft., or three-quarters pound of ammonium sulfate.

Q. *I do not own a soil-testing kit. I have been told that my State Agricultural Experiment Station will test my soil. How much soil should I send and how should I gather it?*

A. Submit about a quart of soil in an ice cream container or some similar container. Take several samples from different parts of your garden or property by slicing small cross sections of soil to a depth of about 6 inches. Mix the several specimens together in the container.

Q. *What is bonemeal and is it any good for the garden?*

A. Bonemeal, both raw or steamed, contains mostly phosphoric acid, a small percentage of nitrogen but no potash whatsoever. Hence it cannot be considered as a complete plant food. It is good for the garden, especially where a slow but steady supply of phosphorus is desirable. Outdoors it is usually used at the rate of about 5 pounds per 100 square feet of garden area.

Q. *How acid and how alkaline may soils in their natural states become?*

A. Under natural conditions in rainy regions, the soil acidity may drop as low as pH 3.0. Most acid soil comes to equilibrium at pH values between 4 and 5.

In dry regions, it is not unusual to have soils with a pH as high as 10.0. Soils used for agricultural purposes in irrigated regions usually run between 7.5 and 8 pH.

Q. *My soil is quite acid. It tests pH between 4 and 5. What can I do to sweeten it?*

A. To raise the average soil from 4-5 to 6-7 pH requires about 15 pounds of ground limestone for each 100 square feet. If hydrated lime is used, apply only three quarters of this amount or about 10 pounds. [SEE PAGE 132]

GARDENERS' GUIDE

Flower Grower 1953 Directory of Products Used in Soil Management

compiled by CAROL H. WOODWARD with the assistance of HARRIET K. MORSE

MULCHING MATERIALS

Any protective covering placed over the soil is termed a *mulch*. During the growing season it helps to conserve soil moisture and, in the winter, it eases excessive freezing and thawing. A mulch also aids in weed control.

The granular mulching materials and others which break down into humus greatly improve the soil if they are eventually dug in. Some, such as peatmoss and vermiculite (exfoliated mica, formed into fine, porous granules under extreme heat), are definite soil conditioners. In fact, because of their great water-holding capacity, these both serve better *in* the soil than on top of it. Others, such as dried seaweed, have fertilizing value.

Specially prepared paper and aluminum foil are among the solid mulching materials of more limited use. Glass wool and burlap meet with favor for special purposes.

The kind of mulching material for the gardener to select often depends on where he lives, for local products will be by far the most economical. On the eastern seaboard, salt hay is a favorite; in the southern states, sugar cane bagasse or dried water-hyacinth. Near breweries, spent hops can be carted away for the benefit of the garden and to the great relief of the company, which has trouble disposing of them.

Since some of the most useful materials are only available locally at feed stores, factories, and in fields, the list below is suggestive rather than comprehensive in naming the products available as mulching materials.

Miscellaneous Mulching Materials

BUCKWHEAT HULLS. Avail. from Frank H. Blodgett, Inc., Janesville, Wisc.; Larrowe Mills, Cohocton, N. Y. (Mul-Tex brand); Lorum Fibre Co., 25 W. 43rd St., New York 36, N. Y.; F. H. Von Damm, 898 Grand St., Brooklyn, N. Y.

COCONUT FIBER. Southern Sunshine Coconut Fiber. Sold in hatcheries in Midwest, Southeast, Southwest. No mail order. Greenwood Products Co., Graceville, Fla.

CORN COBS, GROUND. Lorum Fibre Co., 25 W. 43rd St., New York 36, N. Y.

COTTONSEED HULLS. Southern Sunshine Cottonseed Hulls. Sold in hatcheries in Midwest, Southwest, Southeast. No mail order. Greenwood Products Co., Graceville, Fla.

GLASS WOOL. F. H. Von Damm, 898 Grand St., Brooklyn, N. Y.

GROW POWER. Coarse screen material from compost making. Has fertilizer value. Use 1½ to 6 in. deep. Available only from Benson-Maclean, Bridgeton, Indiana.

LEATHER FLOCK. Fibrous shredded leather useful also as soil conditioner and fertilizer. Packaged in 50-lb. burlap bags. Avail. in East or by mail. Lorum Fibre Co., 25 W. 43rd St., New York 36, N. Y.

PEANUT SHELLS. Avail. from Conrad Fafard, Inc., Box 774, Springfield, Mass., and Lorum Fibre Co., 25 W. 43rd St., New York 36, N. Y. Also, in Midwest, Southwest, Southeast, but not by mail order, from Greenwood Products Co., Graceville, Fla. (Southern Sunshine brand).

SEAWEED. Gathered while growing, dried and ground. Contains nitrogen, phosphorus, potassium and all essential minor and trace minerals. 4-5 lb. per 100 sq. ft. of soil, applied as mulch or mixed in top layer. Sold in 20- & 50-lb. bags. Seacoast Products Co., Yarmouth, Me., or (in 5-100 lb. bags) from Soilservice, Townsend, Mass.

STRAW. Avail. from Conrad Fafard Inc., Box 774, Springfield, Mass., or F. H. Von Damm, 898 Grand St., Brooklyn, N. Y.

SALT HAY. Conrad Fafard, Inc., Box 774, Springfield, Mass.

SUGAR CANE BAGASSE. F. H. Von Damm, 898 Grand St., Brooklyn, N. Y.

TOBACCO STEMS. Avail. from Faesy & Besthoff, 325 Spring St., New York 13, N. Y., and F. H. Von Damm, 898 Grand St., Brooklyn, N. Y.

Wood Shavings

CEDAR SHINGLE TOW. Baled. Avail. from Faultless Shingle Co., 8414 N. Vancouver Ave., Portland, Ore., and H. G. Browning, Garnet, Mich.

WOODFEATHERS. Baled cedar shavings especially screened, highly absorbent. Monarch Shingle Co., Box 98, North Portland, Oregon.

WOOD SHAVINGS. Also avail. from Conrad Fafard Inc., Box 774, Springfield, Mass.; Lorum Fibre Co., 25 W. 43rd St., New York 36, N. Y.; F. H. Von Damm, 898 Grand St., Brooklyn, N. Y.

Peat Moss, Sedge Peat, and Sphagnum

A & D GPM PEAT MOSS, also Pioneer GPM and Concentrated GPM. From Canada and Western Germany. Sold in 3, 7, and 20-lb. bags, also 60 and 120-lb. bales, the latter of 7.5 cu. ft. capacity, in stores or by mail order. Atkins & Durbrow, 165 John St., New York 7, N. Y.

ALLEN'S PEAT HUMUS. Avail. in garden shops in Middle West or by mail. Allen's Garden Shop, Karwick Road in Long Beach, Michigan City, Ind.

BROADLEAF HOLLAND PEAT MOSS. From Holland. Half Moon Mfg. & Trading Co., 90 West St., New York, N. Y.

DOMESTIC PEATMOSS. From Maine. Avail. from Domestic Peat Co., Centerville, Me.; Richland Peat Mines, Penobscot, Me.; American Peat Co., Janesport, Me.; Domestic Peat Co., 100 Middlesex St., Lowell, Mass.

FLORIDA PEAT MOSS. M-16 Products, Inc., P. O. Box 450, Leesburg, Fla.

GERMAN PEAT MOSS. Waynesboro Nurseries Inc., Waynesboro, Va.

MICHIGAN PEAT. From all over the U. S. Use 1 to 2 in. deep. For garden use in bags of 25, 50, and 100 lb. (Also specially prepared peat comes in pecks and half pecks for planting azaleas and roses, and for potting African violets and other house plants.) Michigan Peat Inc., 267 Fifth Ave., New York 16, N. Y.

NAMSCO and ARROW brands. From Canada and Germany. Avail. in plastic bags, small cartons, and large and junior bales in stores no. of Ohio river, e. of Miss. and in Texas, or by mail order. New Amsterdam Import Co., 122 Chambers St., New York 7, N. Y.

PREMIER PEAT MOSS. Pure sphagnum moss. From Europe and Canada. Available in stores east of the Rocky Mts. or through mail order, seed, and nursery catalogs. Comes in large or small bales, plastic bags or cartons. Premier Peat Moss Corp., 535 5th Ave., New York 17, N. Y.

QUEBEC and FAFARD brands. From Canada and Europe. Avail. in stores, esp. in Northeast, in plastic bags and counter boxes, 4 and 7-bu. bags, and 10, 15, and 20-bu. bales. Conrad Fafard, Inc., Box 774, Springfield, Mass.

REPEAT and NORTHERN LIGHT PEAT MOSS. Mined in Minn. and Iowa. Three types: Hypnum peat moss, Sphagnum, and Black Cultivated Peat, providing a range in pH from 4.0 to 7.0. Sold in five sizes in plastic-lined bags, also in bulk, in stores and through many mail order houses. Eli Colby Co., Hanlontown, Iowa.

SEDGE PEAT. Michigan Peat, Inc., 267 Fifth Ave., New York 16, N. Y.

"Better SOIL—Better Garden"—*Flower Grower*

Organic matter in the form of a two-inch layer of manure or compost should be spaded into the soil in the fall.

Do not use sawdust to improve the soil unless it is well rotted or a nitrogen fertilizer is added; otherwise it will result in temporary nitrogen deficiency.

Ashes and dry leaves added to thin clay will bring it to the consistency of loam. Manure, peatmoss or both will hasten the process.

The best way to improve heavy clay wet soils is to provide drainage.

It is not at all necessary to make light colored soil darker. Color of soil does not indicate fertility, but the type of mother rock it was made from.

Tough and gummy black virgin soils can be lightened by adding a three-inch layer of manure or peatmoss. These soils may also be lacking in some elements, so a light application of commercial fertilizer ("complete plant food") may help.

To loosen a sandy loam soil that packs, add manure, peatmoss or leafmold and incorporate in top 6 inches of the soil.

GARDENERS' GUIDE

SPHAGNUM PEAT MOSS. From Maine. Sold in retail stores. Faesy & Besthoff Inc., 325 Spring St., N. Y.

SPHAGNUM MOSS. From central Wisc., Mass., and N. J. Avail. in stores in these regions, or by mail order. Warrens Moss Co., Box 7, Warrens, Wisc.

Vermiculite

MICA-GRO and CASPRO VERMICULITE. Distr. chiefly in New England by Jos. Breck, Boston, Mass. Mfc. by Calif. Stucco Products of N. E., Inc., 169 Waverly St., Cambridge, Mass.

OLD DUTCH VERMICULITE. F. H. Von Damm, 898 Grand St., Brooklyn, N. Y.

TERRA-LITE VERMICULITE. Avail. in 4-qt., ½-bu., 2-bu., and 3⅓-bu. (4 cu. ft.) bags in stores throughout country or by mail order through dealers' catalogs. Terra-Lite Div., Zonolite Co., 135 S. LaSalle St., Chicago 3, Ill.

SOIL TESTING DEVICES

(Descriptive literature is available from each manufacturer.)

EARP-THOMAS SOIL TESTER. Acid solution in bottle for pH only. Earp Laboratories, Hampton, N. J.

HYDRION. Tests for pH only by moistening of paper strips. Available in stores or by mail order from Harry Ross, 70 W. Broadway 7, N. Y.

KEMDECO SOIL ANALYSER. Chemical solution for determining pH, also phosphorus, ammonium-nitrogen, and nitrate-nitrogen, with a special turbidimetric method for potassium. Based on 30,000 field tests. Approved by Montreal Botanical Garden. Avail. by mail order from Kemdeco Co., Ltd., 1358 Greene Ave., Montreal 6, Canada.

LAMOTTE SOIL TESKIT. Tests for pH only, with chem. solution. Available in lab. supply houses throughout world or by mail order from LaMotte Chem. Products Co., Towson, Baltimore 4, Md.

LAMOTTE SOIL TESTING SETS. Separate set supplied for each of the nutrient elements. Tests made with chem. solutions. Available in lab. supp. houses throughout world. LaMotte Chem. Products Co., Towson, Baltimore 4, Md.

SUDBURY SOIL TEST KIT. Tests for nitrogen, phosphorus potash, and pH, with chem. solution. 4 sizes, ranging from 2-min. simple test model to professional model with complete equipment. Avail. in stores or by mail from Sudbury Laboratories, S. Sudbury, Mass.

HAND TOOLS

Aerifiers

SELKA AERIFIER. Tempered blade curved at one end, 8 in. wide; for hoeing with simple raking motion and controlling depth of mulching; 54 in. hardwood handle, light wgt. Avail. only by mail order from Selka Co., 319 45th St., Western Springs, Ill.

Hand Cultivators

COMFY CULTIVATOR. Effortless tool to ease wrist strain. Has hand grip and arm rest and 3 steel prongs. Received good design award from Institute of Modern Art. Western Home Products Inc., 475 Franklin Turnpike, Allendale, N. J.

GARDEX CULTIVATORS. Numerous models with from 3 to 7 prongs, some adjustable, also soil pulverizer cultivators and midget models. Long and short-handled styles. See also listings under other tools. Gardex Inc., Michigan City, Indiana.

GEYER CULTIVATOR. 3- or 4-prong models, high carbon steel; 4-ft. ash handles. Geyer Mfg. Co., Rock Falls, Ill.

HENRY "WEED BIRD" GARDEN TOOLS. Light-weight, short-handled hoe, trowel, and triangular-blade cultivator (also pruning shears) in kit. Handles of unbreakable tenite, shaped to fit hand comfortably. Blades of cold rolled steel with heavy nickel plate. See also *Trowels.* J. T. Henry Mfg. Co., 2317 Whitney Ave., Hamden, Conn.

JOHNSON CULTIVATOR. Short handle, 9½ in. overall; long handle 36 in. Both have polished hardwood handles and steel ferrule, 3 claws. Wm. Johnson Inc., Brenner & Kent St., Newark, N. J.

NORCROSS CULTIVATORS. Curved finger-like interchangeable prongs with broad tips. 9/32 in. high carbon sq. steel. 4-ft. hardwood handles. 1, 3 and 5-prong sizes. C. S. Norcross & Sons Co., Bushnell, Ill.

SPEEDY CULTIVATORS. 4 needle-sharp tines. Spread of tines 5 in., handle 4½ ft. Union Fork & Hoe Co., 500 Dublin Ave., Columbus, Ohio.

TRUE TEMPER. Various models available. True Temper Corp., 1623 Euclid Ave., Cleveland, Ohio.

VICTORY CULTIVATORS. Three- and five-tine patterns. Tines attached by eye bolts, easy to change spread or number to straddle row, cultivate between rows, or among small plants. Oval ends act like plows. 4-ft. ash handle. Union Fork & Hoe Co., 500 Dublin Ave., Columbus, Ohio.

YO-HO. Hand cultivators with ¼-in. hardened prongs, ash handles. *No. 50*—4 prongs, width 5 in., depth 3 in., handle 4 ft. *No. 51*—3 prongs, width 3 in., depth 3 in., handle 4 ft. *No. A*—3 prongs, width 3 in., depth 3 in., handle 12 in. Yeoman & Co., Monticello, Iowa.

Spading Forks

AMES FORK. Light-weight. Blades forged from high grade steel heads; ash or laminated handles. O. Ames Co., Parkersburg, W. Va.

GARDEX. Various models available. Gardex, Inc., Michigan City, Ind.

GEYER and RANGER SPADING FORKS. 4-tine heavy; 4-tine light. Forged from high carbon steel. 4-ft. ash handles. Geyer Mfg. Co., Rock Falls, Ill.

JOHNSON SPADING FORK. 3 tines, lacquered green, 11 in. over-all. Polished hardwood handle, steel ferrule. Wm. Johnson, Inc., Brenner & Kent St., Newark, N. J.

NORCROSS CULTIVATING FORK. Oil tempered prongs forged from one piece high carbon steel, hardwood handle, 4 ft., 4 in. C. S. Norcross & Sons Co., Bushnell, Ill.

KESTON FULCRUM. A steel rest attached to back of garden spading fork to facilitate hard work in digging. It makes possible the lifting of 20 lb. of soil with only 2 lb. hand pressure. Keston Organic Products Co., P. O. Box 87, Haddon Heights, N. J.

TRUE TEMPER. Various models available. True Temper Corp., 1623 Euclid Ave., Cleveland, Ohio.

UNION. Various models available. Union Fork & Hoe Co., 500 Dublin Ave., Columbus, Ohio.

Hoes

AMES HOE. Light-weight. Blades forged from high grade steel heads; ash or laminated handles. O. Ames Co., Parkersburg, W. Va.

GARDEX HOES. 17 models including pull hoe weeders, pointed or square edge hoes, 2 or 3 prong styles, ladies' hoe and midget models. Gardex Inc., Michigan City, Indiana.

GEYER and RANGER BRAND HOES. Numerous styles including scuffle hoe; 1- and 2-prong riveted and shank types; 4- or 5-ft. ash handles. Also small light models all forged from one piece high carbon steel; ash handles. Geyer Mfg. Co., Rock Falls, Ill.

IRON CITY LITTLE DIGGER. Forged steel hoe, 2½-in. blade; weight 2¾ lb. complete with 36 in. handle. Red, tipped silver. Three styles: #432 has double blade; #431 is cutter style; #433 pick style. Many other models of hoes, mattocks and picks. Iron City Tool Works, 3201 Smallman St., Pittsburgh, Pa.

LEONARD SCUFFLE HOE. A. M. Leonard & Son, Piqua, Ohio.

OLD FORGE DIGGER JIGGER. Hand hoe with palm-fitting grip. Blade sharp on 3 sides for digging, scraping, hand hoeing; designed by a woman flower grower. Blade 10½ in. long, forged and plated alloy. Octagon shellacked birch handle. Quality Tools Corp., New Wilmington, Pa.

PASCHKE ALL PURPOSE HOE. Triangular with twisted shank for reaching around plants, long handle. Paschke Garden Tool Co., 304 2nd St., N.E. Faribault, Minn.

SCOVIL GRUB HOE. Strong, light-weight eye for attachment of hoe to handle. Made by this company for over 110 yrs. D. & H. Scovil, Inc., Higganum, Conn.

"Better SOIL—Better Garden"—*Flower Grower*

Never work clay soil when wet; it puddles and makes a poor environment for roots. Digging too soon in spring may make it practically useless all season, although applying peatmoss will help dry soil quickly.

Hard-to-handle soils can be improved during the winter by plowing them in the fall and having the winter frosts and thaws break them up.

Extremely sandy soils should be changed to loam by the use of manure, compost, green manures, or peatmoss.

Crops with fine roots do best in sandy soils. Crops with coarse roots do best in heavier soils.

Let fallen leaves decompose before incorporating them into the soil.

An infertile soil for a garden can be made productive by planting it with a good leguminous green manure crop in the early fall, manuring it in the late fall or winter, spading the manure and green manure crop in the spring, applying commercial plant food in the spring, and adding some superphosphate during the growing season.

These Easy Tests Come FIRST to Have BETTER SOIL You Can Grow

Bigger and Better Flowers, Luscious Vegetables, A Luxuriant Lawn

Here is your guarantee of perfection in everything you grow! Your flowers will be magnificent in form, large in size, vivid in color and sweet in fragrance. Fulfill your fondest dreams of garden beauty right this season, and every year to come. Treat your family to fresh home-grown vegetables, full of vitamins and minerals, larger and more delicious.

You'll be proud of your rich, lush, velvety green lawn that adds charm to home and garden from early spring till late fall. You'll have a luxuriant turf that withstands the hot dry summer, so dense that crabgrass and weeds cannot grow.

Easy as Reading a Thermometer

You'll find just what your garden needs, printed right on the chart, when you make your test.

HORTICULTURAL KIT

The most popular size for those whose garden is their hobby. The rugged steel chest means a lifetime of service. Has a carrying handle so you can use it anywhere in the garden — weighs only 9½ lbs. Simple, easy directions with charts showing needs of 225 different flowers, plants, etc. Makes over 150 tests for nitrogen, phosphorus and potash. Also shows whether lime is needed (pH), and how much. **Big value, low cost — only $14.95!**

POPULAR GARDEN KIT

Especially designed for the small garden, complete in every way. Makes over 50 tests for nitrogen, phosphorus, potash and lime. Handsome case with clear lucite cover. Simple directions and charts. **Only $5.89!**

SUPER deLUXE KIT

The last word in Soil Test Kits! Handsome streamline welded steel chest with luggage type handle (in use above). 12 times as much testing solutions, more and larger equipment. Depended on by the best gardeners—the same model used by florists and nurserymen. Most economical to use. You'll marvel at its low cost for such high quality — **only $29.95!**

Stores: Write for Special Offer.

Is Your Soil "Sweet" or "Sour"?

Some plants just can't live unless the soil is sweet (alkaline); others do well only if it is sour (acid). These easy tests tell just what to do so you can grow all your favorites, even those that have failed for years! The money you've lost on plants that died would pay for a Sudbury Soil Test Kit many times over.

OUR DARING GUARANTEE

You can't lose—even next fall, if you have not had a better garden and are willing to part with your Soil Test Kit return it for refund.

If you choose the Horticultural or Super deLuxe Kit, easy payments are available - see coupon.

TEST YOUR SOIL FREE!

Your Soil Tests cost you nothing, unless you are convinced that you wouldn't part with your Kit at any price; otherwise, return it in 10 days for full refund.

Take the Guesswork Out of Gardening

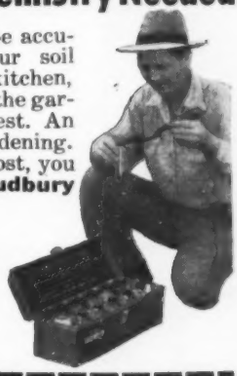
More important than all your tools, all the soil conditioners you use, all the top soil you add, is whether your garden has the nourishment your plants must have to grow. Flowers, vegetables and lawns have no way to get food except from the soil.

No one can tell by looking at soil what plant foods it lacks—there's no way to know except by soil tests. These easy 10-minute tests with a **Sudbury Soil Test Kit** tell you more about your soil than a lifetime of gardening.

Plants, like people, need a balanced diet or they become puny, sick and deformed. You'll know just what is wrong with your garden, how to correct it—what kinds and how much fertilizer to use. First aid to amateurs, the fancier's guide to prize-winning blooms. Don't take a chance—take a test!

No Knowledge of Chemistry Needed

Even your first tests will be accurate and reliable. Test your soil anytime, anywhere—in the kitchen, garage, cellar or right out in the garden. Costs less than 10c a test. An indispensable aid to good gardening. Worth many times its small cost, you can't afford to be without a **Sudbury Soil Test Kit** this year!



SEND NO MONEY

Order C.O.D. plus postage — or send check and we'll mail prepaid, saving you from 50c to $2.93 in postal charges.

Sudbury Laboratory, Box 677, South Sudbury, Mass.

Send me the Sudbury Soil Test Kits marked below:

.....Horticultural Kits @ $14.95 each
.....Popular Garden Kits @ $5.89 each
.....Super deLuxe Kits @ $29.95 each

☐ Enclosed is $..... Send order postpaid. ☐ Send C.O.D. plus postage.

Name.....

St. or R.D......

City.....*Zone*.....*State*.....

☐ I'll use Easy Payment Plan—pay mailman $4.95 down plus postage; then 2 monthly payments for the Horticultural Kit of $5.50 each, or 4 payments for Super deLuxe Kit of $6.75 each.

SUDBURY SOIL TEST KIT

SUDBURY LABORATORY, Box 677, South Sudbury, Mass.

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FOR SOIL THAT IS ALKALINE . . .

Alyssum
Androsace
Campanula
Christmas Rose
Clematis
Cliff Brake Fern
Daphne
Delphinium
Dianthus
Draba
Germander
Geum
Iris
Lewisia
Lilac
Lithospermum
Mignonette
Nasturtium
Phlox
Potentilla
Ramonda
Sweet Pea

FOR THE SEASHORE . . .

Artemisia
Bayberry
Beach Plum
Delphinium
Evening Primrose
Hollyhock
Honey Locust
Hydrangea
Japanese Black Pine
Marigold
Nasturtium
Petunia
Rose
Russian Olive
Tamarisk

IF YOUR SOIL IS DRY, SANDY . . .

Agave
Arenaria
Beach Plum
Cactus
Calluna
Chrysopsis
Eupatorium
Euphorbia
Hardy Sweet Pea
Liatris
Mesembryanthemum
Milkweed
Myrica
Sand-Verbena
Succulents

for any SOIL there's a garden!

You may never see a garden just like this one. In one corner, the ocean splatters its salty spray; in another, cacti bloom in the desert sand, while under an oak, rhododendrons flourish. The garden may be "impossible," but the lists of plants for different kinds of soil will make it possible for you to have a better garden.

Seaside gardeners, or gardeners-in-the-shade, or folks who have wondered what would grow well near a brook, can choose their plants to fit their soil. Elsewhere in this issue of FLOWER GROWER, you will find suggestions on how to modify your soil to fit the flowers you want to grow—but from this page you can get ideas for making your growing garden fit the kind of soil you have.

ILLUSTRATION BY HERBERT McCLURE

FOR LIGHT, POOR SOIL . . .

False Indigo
Flax
Gaillardia
Golden Marguerite
Iceland Poppy
Lupine
Moss Pink
Yarrow

FOR DEEP SHADE . . .

Bugbane
Ferns
Lily-of-the-Valley
Plantain Lily
Trillium
Violets

FOR ACID SOIL . . .

Arbutus
Azalea
Butterflyweed
Calla Lily
Cardinal Flower
Chrysanthemum
Dicentra
Enkianthus
Galax
Gentian
Gladiolus
Heather
Holly
Huckleberry
Kalmia
Marigold
Mountain Ash
Pieris
Platycodon
Rhododendron
Trailing Arbutus
Twinflower
Yew

HERE ARE AQUATIC PLANTS . . .

Blue Flag
Cat-tail
Egyptian Paper Plant
Giant Arrowhead
Lotus
Pickerel-Weed
Parrot Feather
Sacred Lotus
Umbrella-Plant
Water Canna
Water Hyacinth
Water Lettuce
Waterlily
Water Poppy
Water Snowflake

GROW THESE NEAR WATER . .

Black Ash
Blue Flag Iris
Cardinal Flower
Clethra
Forget-Me-Not
Japanese Primrose
Marsh Marigold
Osier Dogwood
Pitcher Plant
Spicebush

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THE LAUSON COMPANY
New Holstein, Wis., U. S. A., Div. of Hart-Carter Co., In Canada: Hart-Emerson Co. Ltd., Winnipeg

GARDENERS'

SPEEDLINE EARLESS HOE, 2 PRONG HOE, WARREN HOE (pointed), and numerous others, including small light short-handled models, all with blue handles. Union Fork & Hoe Co., 500 Dublin Ave., Columbus, Ohio.

TESTED TOOLS, BUCKHORN, DEFIANCE, MAUMEE, HARD-WARE. Garden tools—hoes, forks, and rakes. Miller Mfg. Co., Hicksville, Ohio.

TRUE TEMPER HOES. Numerous patterns including 2-prong weeding hoe. True Temper Corp., 1623 Euclid Ave., Cleveland, Ohio.

WARREN-TEED GRUB HOES. Warren Tool Corp., Warren, Ohio.

YO-HO HOE. Scuffle and other field hoes, numerous models, all high carbon polished blades in various patterns. Yeoman & Co., Monticello, Iowa.

Mattocks

AMES MATTOCK. Light-weight. Blades forged from high grade steel heads; ash or laminated handles. O. Ames Co., Parkersburg, W. Va.

GARDEX. Various models available. Gardex, Inc., Michigan City, Ind.

HUBBARD MATTOCKS. Numerous garden models, all polished and painted green, including pick, cutter, cultivating and double-prong grub hoes, besides mattocks. Wgt. ½ to 2 lb. Another heavier line painted blue, 3½ to 9 lb. Hubbard & Co., 6301 Butler Smith St., Pittsburgh 1, Pa.

IRON CITY LITTLE DIGGER. See description under *Hoes*.

KLEIN-LOGAN MATTOCK. Light weight but strong enough for heavy jobs. Forged from high carbon steel and heat treated. Hoe and cutter garden mattock, 2½ lb., 3 lb.; garden pick mattock, 2½ lb. Klein-Logan Co., 122 S. 13th St., Pittsburgh, Pa.

TRUE TEMPER. Various models available. True Temper Corp., 1623 Euclid Ave., Cleveland, Ohio.

UNION. Various models available. Union Fork & Hoe Co., 500 Dublin Ave., Columbus, Ohio.

WARREN-TEED MATTOCK. Warren Tool Corp., Warren, Ohio.

Rakes

GARDEX FLORAL RAKE. Extremely light weight, all steel; 7½ in. wide, 10 curved teeth close together, handle 3¾ ft. Also midget rake. Gardex Inc., Michigan City, Indiana.

GEYER and RANGER GARDEN RAKES. Round bow, level head and light level head; steel; ash handles. Geyer Mfg. Co., Rock Falls, Ill.

SPEEDLINE RAKES. Level head and round bow; light weight but strong, forged from solid steel. Union Fork & Hoe Co., 500 Dublin Ave., Columbus, Ohio.

TRUE TEMPER. Various models available. True Temper Corp., 1623 Euclid Ave., Cleveland, Ohio.

Spades and Shovels

AMES SPADE. "Lightweight Lady Garden Tool." Blades forged from high grade steel heads; ash or laminated handles. O. Ames Co., Parkersburg, W. Va.

LEONARD LANDSCAPE SPADE. Long strap on spade. A. M. Leonard & Son, Piqua, Ohio.

TRUE TEMPER GARDEN SPADE. Square point and other models of garden spades. True Temper Corp., 1623 Euclid Ave., Cleveland, Ohio.

TRUE TEMPER GARDEN SHOVEL. Flat edge pattern or round point pattern and others. True Temper Corp., 1623 Euclid Ave., Cleveland, Ohio.

UNION RAZOR-BACK SPADES and SHOVELS. Rounded or square point blades; long handles of tubular steel "D." Thick at cutting edge and center, lighter at sides where there is less wear. Also light-weight "Speedline" spades and shovels. Union Fork & Hoe Co., 500 Dublin Ave., Columbus, Ohio.

Trowels

ALL STEEL GARDEN TROWEL. Length overall, 12½ in., width 3 in., weight approx. ½ lb.; green enamel finish. F. H. Reichard Mfg. Co., 400 South First St., Bangor, Pa.

BORDEN TROWEL. Tubular blade for easy entry into ground; high strength aluminum for lightness; handle affords scientifically correct grip. T. W. Borden Co., Sonora, Calif.

GARDEX MIDGET TROWELS. Width 3¼ in., length 11¼ in., ½ lb. Gardex Inc., Michigan City, Indiana.

HENRY LIFETIME GARDEN KIT (new). Trowel, transplanter (a narrower trowel), and 3-prong cultivator in kit. Heavy gauge steel finished in baked enamel. See also *Hand Cultivators*. J. T. Henry Mfg. Co., 2317 Whitney Ave., Hamden, Conn.

JOHNSON TROWELS. Various models of garden trowels. Wm. Johnson Inc., Brenner & Kent St., Newark, N. J.

LEONARD TROWELS. A. M. Leonard & Son, Piqua, Ohio.

SPROWEL. Length 16½ in.; blade 4x6½ in. Spring steel shank. Consumers Prod. Corp., 3226 E. Colfax Ave., South Bend 24, Ind.

Better SOIL—Better Garden

Coal ashes have no fertilizer value, but simply improve the mechanical structure of the soil. Wood ashes are rich in potash (potassium).

There is great danger in over-fertilizing gladiolus. It is best to feed them after they have finished flowering, so that nutrients can be stored in the corms for the following year's production.

Angleworms are not harmful in outdoor soils unless present in excessive quantities. In greenhouse or potting soils they are a nuisance and can be eliminated by applying 5 lbs. of arsenate of lead to 1,000 sq. ft. and watering in.

The presence of green moss is not an indication of acidity, but is a sign of poor drainage, and perhaps a lack of nutrients for flowering plants. Add a complete plant food.

GUIDE

TRUE TEMPER. Various models available. True Temper Corp., 1623 Euclid Ave., Cleveland, Ohio.

UNION. Various models available. Union Fork & Hoe Co., 500 Dublin Ave., Columbus, Ohio.

YO-HO HAND TROWEL. 6 in. blade, over-all length 15 in., red finish. Yeoman & Co., Monticello, Iowa.

WHEEL-TYPE HAND CULTIVATORS

For small hand cultivators without wheels, see *Hand Tools.*

BARKER WEEDER. Roller bearing weeder and cultivator with rotating blades and underground knife. Barker Mfg. Co., David City, Neb.

BATEMAN WHEEL CULTIVATOR. 24 in. wheel; lt. wgt., #19 A has 3-tooth att.; #19 B has 3-tooth att., plow and hoe; #19 C complete with all attachments. Field Force Mfg. Co., Inc., Phoenixville, Pa.

BATEMAN WHEEL HOE. Single and double wheel models, adjustable wheel and handles. Tools and attachments include seeder, cult. teeth, scuffle and other hoes, plows, weeder, rake. Field Force Mfg. Co., Inc., Phoenixville, Pa.

BUSTER HOEING MACHINE. All steel roller, light weight; 10-in. hoeing width; clip-on container catches weeds and stones. Produces fine tilth from rough dug soil; cleans and aerates top soil; incorporates top dressing quickly. British Isles only. F. G. Gale, Fernbank Rd., Ascot, Berks., England.

DANDY BOY HIGH WHEEL CULTIVATOR. Single wheel, overdrive style; handles of steel tubing, rubber grips. Attachments include 5-tooth weeder, turn plow and double pointed shovel. Several models avail. including comb. seeder and cultivator. Midland Co., So. Milwaukee, Wisc.

DANDY BOY WHEEL HOE. Double and single wheel types, some with semi-pneumatic tires. Ball-bearing wheels, adjustable handles of tubular steel, rubber grips. Attachments are 2 weeding hoes, 2 turn plows, 4 cult. teeth and a wrench. Several models including a combination weeder and cultivator. Midland Co., South Milwaukee, Wisc.

EASY GARDEN MULCHER. 8 revolving blades break up soil and cut weeds. Cutting knife at rear for weed destruction. Also 3 adjustable cultivating shovels. Extra attachments. Midland Co., Milwaukee, Wisc.

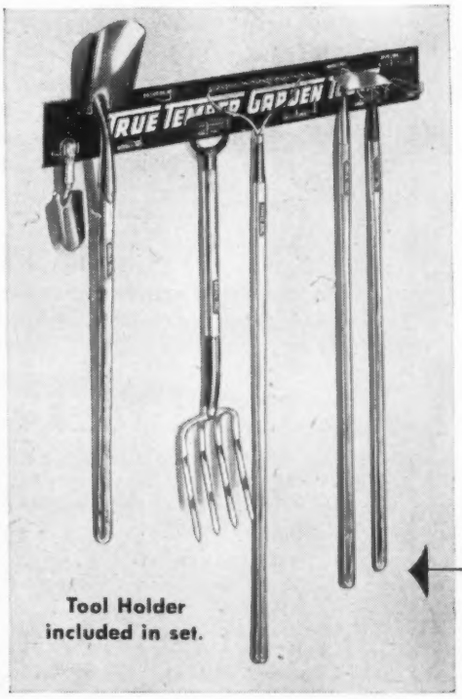
GEYER GARDEN MASTER. Wheel type, rotary; 10½-in. reel reversible for deep cultivation one side, weeding and shallow cultivation other side. Three models: high wheel, 23 in.; low wheel, 15 in.; 2 wheels, 15 in. diameter. Attachments: moldboard plow, right and left-hand side hoe, duck feet, double-pointed shovel, 5-prong cultivator. Geyer Mfg. Co., Rock Falls, Ill.

KELLY NO. 12 GARDEN PLOW. One 24-in. wheel, 2 wood handles; can be furnished with turn shovel, reversible point, wing sweep, corn shovel and 5-prong weeder. Avail. in S.W. or by mail order from G. A. Kelly Plow Co., 101 S. Center St., Longview, Texas.

NORCROSS GARDEN GROWER. Rotary wheel with 8 high carbon steel blades, reel diameter 9 in. Adjustable weeding knife or 5-prong cultivator can be attached. Lawn-mower type handle of hard wood, 10½-in cut, shipping wgt. 15 lb. Larger size also avail. C. S. Norcross & Sons, Co., Bushnell, Ill.

PLANET JR. One wheel, 2 wood handles. Can be furnished with seeder, hoes, cultivator teeth, plows for hilling. S. L. Allen & Co., Fifth St. & Glenwood Ave., Philadelphia 40, Pa.

Now you can get all of your basic garden tools in one handy set!



Tool Holder included in set.

THESE are True Temper's finest quality tools—built by master craftsmen to feel and balance better, last longer. And they're unequalled in beauty—with rust-resisting copper bronze on heads, new sparkling crystal maroon lacquer on ferrules and rich fire hardened handles that resist weather, wear and vermin.

See this set, and other True Temper garden tools and sets at your favorite hardware store. The True Temper name is your assurance of top quality and top performance in tools! True Temper Corporation, Cleveland 15, Ohio.

PICTURE THESE "DYNALITE" GARDEN TOOLS IN YOUR GARAGE!

"Dynalite" Set consists of: Garden Shovel • Spading Fork (Long or Dee Handle) • 12-tooth Bow Rake • 4-tine Cultivator • Stainless Steel Trowel • Garden Hoe • Tool Holder (Holds 11 or more tools)

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blue-handle tools

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Small Garden Shovel: The size you always wanted (7¾ x 10 inch blade) for digging and moving dirt, setting out plants and shrubs. Very strong.

Unbreakable Light-Weight Steel Rake: Head and bows forged in one piece. It will never rattle or work loose. Easier to use than heavy garden rakes.

5" Wide Floral Hoe: Sturdy as larger hoes and a better size to work among flowers. Light and easy to use. Six other types of SPEEDLINE hoes are also available.

A Matched Set of Small Tools, Too: Light and strong with comfortably shaped wood handles. So low in price you'll want a set at once.

Look for the blue handle. It's SPEEDLINE.

THE UNION FORK & HOE COMPANY, Columbus 15, Ohio

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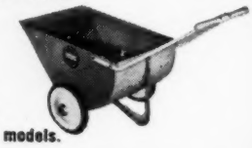
Model 40. 24" spread, 75 lbs. cap.

Other models from 18" to 36" spread.

Rugged all-steel Masters spreaders are built to give you a life-time of easy, accurate performance. Exclusive "Fertilizer Miser" fingertip control, located high on handle for your convenience, eliminates stooping to make adjustments; assures even, accurate spreads of costly seed and fertilizer to save you money and do a perfect job. No more wasteful pile-up of material in one place and insufficient amount in another. Heavy-duty steel wheels with wide-tread rubber tires to protect soft lawns.

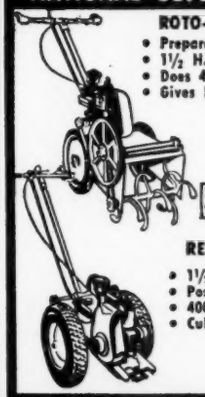


For strongest and best lawn and garden cart buy Masters Handi-cart, two all-steel, 3½ cu. ft. models.

Buy the BEST, buy Masters at your hardware or seed store.

MASTERS PLANTER CO. Benton Harbor, Mich.

NATIONAL SUPER-VALUE SPECIALS



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GARDENERS'

RO-HO GARDENER. Mulcher, rotary hoe and cultivator. Has 40 hoe-point teeth on blades of reel. Mulches and weeds strip 10½ in. wide; hoe drum is 9¾ in. wide. Rowe Mfg. Co., Galesburg, Ill.

RO-LO. Roller of aluminum alloy for seed bed preparation, for weeding, hoeing, plowing, ridging. Total weight 22 lb. including weight of roller (6 lb.); chassis 10½ in. wide; tubular steel handles. Industrial & Agric. Improvements, St. Andrews Rd., Great Malvern, Worcestershire, England.

SPIKE DISK AERATOR. For aerating soil and reseeding lawns. Model #8 has 8 discs of high carbon alloy each 10 in. in diam., rolling width 16 in., net wgt. 32 lb. Several models, some attach to power lawn mowers. Ohio Machine Products Co., 105 Duane St., N. Y., N. Y.

SUPERIOR GARDEN PLOW. 2 models. 24 in. wheel with 1¼-in. tread or 16-in. wheel with 1½-in. tread. Seasoned oak handles, special frame steel. Weight 19 or 26 lb. Avail. nationally only through retail hardware stores. Bridgewater Plow Corp., Bridgewater, Va.

POWER CULTIVATORS

Selecting a power cultivator for lawn and garden use requires making a choice among more than 50 different kinds. There are, in addition, many larger styles designed especially for farm acreage. Four-cycle air-cooled motors are standard construction for all. With a power take-off they can be used for running buzz-saws and other speed equipment.

For nearly every make there is a variety of attachments, most of which are speedily changed by some clever manipulation, generally a patented device.

Weights of these machines vary from under 100 pounds to around 400 for those that approach the farmland type. Some have bicycle-type handle bars, others two long handles in a truncated V. Some machines are furnished with a sulky for riding on the job, but few if any of these are included here, as these are generally the larger, heavier type for farm use.

Power cultivators listed below are classified according to the number of wheels on which they run. Unless otherwise stated, they are available throughout the country. All have descriptive literature.

Wheelless Rotary Tillers

MERRY TILLER. 2 HP, 85 lb. with single pair of rotors, 100 lb. with double. Over-all length, 36 in., width 12, 18, or 24 in., height 38-48 in., adjustable. Width of cult. 12, 18, or 24 in., depth to 10 in. Wheels with hard rubber semi-pneumatic tires available extra. One speed forward, throttle control. Rotary tines guaranteed against wreckage under any conditions. Mulching rotors, shallow cultivating rotors, plow, harrow, weeder bar, composter, also lawn mower, sickle bar, snow plow and grader, burden carrier. Distr. by Gwin, White & Prince, Inc., P. O. Box 1835, Seattle, Wash. Merry Mfg. Co., Edmonds, Wash.

CHOREMASTER ROTARY TILLER. 1½ HP, 85 lb. Over-all length 45 in., width 27 in., height 40 in. Width of cult. 14-21 in., depth to 9 in. Variable speed, automatic clutch release. Rotary tines, no other attachments. Lodge & Shipley Co., 800 Evans St., Cincinnati 4, Ohio.

TILL-MASTER ROTARY TILLER. *Model E3269*: 1½ HP, 140 lb. (shpg).

Better SOIL—Better Garden

Sifted coal ashes are better for heavy clay soils than sand.

Leaves will not usually make the soil more acid. Exception: oak leaves.

GUIDE

Model E3270: 2HP, 150 lb. (shpg). Over-all length 59 in., width 25 in., height 36 in. Width of cult. 16 in.; with extra tang wheels 24 in. Gear drive, variable speed from slow walk to brisk pace. Rotary tines, no other attachments. National Farm Equipment Co., 142 Greene St., New York 12, N. Y.

WINDOLPH GARDEN MAKER. *Standard model*: 2 HP. Rotary tines interchangeable with wheels. Over-all length 30 in., width 16 in., height 30 in. Width of cultivation 8-20 in., depth up to 10 in. One speed. Weeder and clod buster wheels, cultivator, weed hoe, furrower, also lawn mower, snow plow and grader, sickle bar, power sprayer, pump. Windolph Tractor Co., 826 S. W. 21st Ave., Portland 5, Ore.

One-Wheeled Cultivators

BOLENS HANDI-HO. *Model 10C*: 1.6 HP, 160 lb. (shpg), not incl. attachments. *Model 10CB*: 2½ HP, 175 lb. Over-all length 62 in., width of tractor 11 in., handles 28 in., height 41 in. Pneumatic tire. Finger control of throttle. Equipped with 3-prong weeder and 6½ in. disc guide. Other attachments: rotary plow, rotary tines, harrow, also lawn mower, sickle bar, rotary snow plow and blower, and others. Factory-franchised dealers. Food Machinery & Chemical Corp., Port Washington, Wisc.

CHOREMASTER GARDEN TRACTOR. *Model B*: 1½ HP, 128 lb., *Model BC*: 2½ HP. *Model C*: 3 HP. Over-all length 58 in., width 27 in., height 36 in. Width of cult. 4-24 in., depth up to 6 in. Pneumatic tire, centrifugal clutch, variable speed to 2⅔ MPH. High and low speed power take-off. Turning plow, breaking plow, furrowing tool, disc harrow, spring tooth cultivator, etc., also lawn mower, circular saw, grader, sickle bar, snow plow, trailer, sulky, saddleweight, compressor, weed sprayer. Lodge & Shipley Co., 800 Evans St., Cincinnati 4, Ohio.

FARM-ETTE TOMBOY (*Model B*): 2 HP, 160 lb. Tractor width 12½ in. Deep traction tread tire. All gear drive, speed up to 4 MPH. 3- or 5-shovel cultivator, depth control wheel, also sickle bar, lawn mower, snow plow and grader, kick stand, power take-off pulley. East of Mississippi. Tom Moore Tractor Co., Mantua, Ohio.

GARDEN MASTER TRACTOR. *Model E3200*: 1½ HP, 100 lb. (shpg). *Model E3201*: 2 HP, 125 lb. (shpg). Cast alloy wheel. Speed to 2 MPH, governed by hand throttle. Cultivator, disc harrow, breaking plow, also sickle bar, lawn mower, snow plow, power take-off. National Farm Equipment Co., 142 Greene St., New York 12, N. Y.

LITTLE FARMER. 1.10 HP, 165 lb. (shpg). Over-all length 63 in., width 28 in. outside of handles, 14 in. outside of duck feet, height 38 in., adjustable handles. Steel tread wheel, one speed. Equipped with duck feet, cultivator and standard belts and pulleys. Additional attachments: disc harrow, furrower, sprayer, weeding hoes, seeder, marker, plow, depth wheel, throttle control. Will-Burt Co., Orrville, Ohio.

Two-Wheeled Cultivators

ARIENS GARDENEER. 2-2½ HP. Double over-lapping tines. Width of cult. 10-16 in. Heavy duty tires. Mower and sickle bar avail. Ariens Co., 109 Calumet St., Brillion, Wisc.

ARIENS YARDSTER (new). 1.6 HP. Over-all length 51 in., width 21 in., height 37 in. Width of cult. 12 in., depth to 7 in. Rotary tines. Adjustable handle bars. Semi-pneumatic cog-type tires also avail., wheel drive with 2-speed gearing, rotary mower, rotary snow thrower. Ariens Co., 109 Calumet St., Brillion, Wisc.

AUTO-HOE. 2 HP. 100 lb. Over-all length 54 in., width 19 in., height 23 in. Width of cult. 14 in., depth 1-5 in. Hard rubber tires. 2- or 4-cycle motor, variable speed. Rotary shovels. Snow blower avail. Auto-Hoe, Inc., West Depere, Wisc.

Greatest Little Power Tool Ever Made for Home Gardening—Tilling—Cultivating!

MUSTANG!

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Small in size and price, but MAN! what a job it does! Tills, cultivates, weeds, mulches — and a dream to handle even in small plots, corners, close to shrubs! And M-E's famous power and performance is built right in: full 2½ HP 4-cycle air-cooled engine . . . universal non-winding, self-sharpening tines that are guaranteed against breakage . . . year 'round attachments available soon. Ask your M-E Dealer about the great new MUSTANG and the complete line of famous M-E ROTARY TILLERS now!

M-E's new MUSTANG tills or cultivates to the depth you desire . . . walks smoothly and easily down the rows. And it turns on a dime — gets in anywhere!

FREE BOOKLET! Fully illustrated, tells story of Rotary Tillage, shows complete M-E line. Ask your M-E Dealer or write M-E, 317 Marion St., South Milwaukee, Wis.

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Famous B Models are acclaimed the finest from coast to coast — feature variable wheel and rotor speeds for controlled soil aggregation, have wide choice of year 'round attachments.

REBUILDS SOIL NATURE'S WAY

MILWAUKEE ROTARY TILLERS

Milwaukee Equipment Mfg. Co., So. Milwaukee, Wis.

GARDENERS' GUIDE

BOLENS POWER-HO. *Model 12BA (Special)*: 2 HP, 190 lb. (shpg) without attachments. *Model 12BB (Deluxe)*: 2½ HP, 255 lb. Over-all length 67 in., width 23 in., height 27½ in. Liquid filled tires, chain guards, front kick stand. Speed 1¼-3¼ MPH, safety stop switch. Cultivator, mold-board plow, disc harrow, spike harrow, snow plow, also air compressor, lawn mower, seeder, sickle bar, circular saw and weed cutter, sprayer, dump cart, sulky. Food Machinery & Chemical Corp., Port Washington, Wisc.

BREADY. *Model E-AB*: 2½ HP, 235 lb. Over-all length 72 in., width adjustable, 21-31 in., height 34 in. *Model RFW*: 2½ or 3 HP, 296 lb. *Model BW*: 2 HP, 215 lb. Over-all length 72 in., width 27 in., height 38 in. Pneumatic tires, adjustable speeds, power take-off on all. Surface cultivator, plow, furrower, disc harrow, spike-tooth harrow, also lawn mower, roller, sickle bar, snow plow, trailer, seeder, sulky, pneumatic pruner, air compressor. Bready Tractor & Implement Co., Solon, Ohio.

CHAMPION TRACTOR. *Model E3272*: 1½ HP, 180 lb. (shpg.). *Model E3273*: 2½ HP, 190 lb. *Model E3274*: 3 HP, 235 lb. *Model E3275*: 6 HP, 260 lb. Finger control on handlebar, powered reverse speed, pneumatic tires, heavy duty traction, wheel width adjustable power take-off provided. Moldboard plow, 6-shovel cultivator with 2 depth wheels, disc harrow, rotary tiller, also cutter bar, power mower, seeder, snow plow, lawn roller, trailer cart, buzz saw, sulky. National Farm Equipment Co., 142 Greene St., New York 12, N. Y.

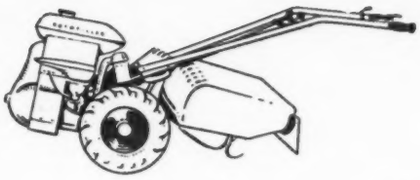
CHIEF. Three models, 2-3½ H. P., one- and two-wheeled. Forward and reverse speed, single grip safety control. Pneumatic tires. Great Lakes Tractor Co., Rock Creek, Ohio.

CULTILLER. *Model B*: 3 HP, 200 lb. with tillage unit (65 lb.) attached. Over-all length 72 in., width 18 in., height 26 in. *Model C*: 3 HP, 325 lb. with tillage unit (110 lb.) attached. Over-all length 65 in., width 19 in., height 28 in. Power take-off. Width of cult. 16 in., depth 1-6 in. Adjustable handles. Pneumatic tires, tractor tread. Speed 1-3 MPH, automatic clutch, full reverse on Model C. Rotary tines for plowing, disking, harrowing. Other attachments: 5-tooth cultivator with 2 depth wheels, rotary rake or aerator, plow, also lawn mower, roller, sickle bar, snow plow and grader, power sprayer, trailer. Cultiller Co., 162 Church St., New Brunswick, N. J.

DANDY-BOY. *Clipper*: 2 HP, 230 lb. with cultivator or sickle. *Town and Country*: 3 HP, 270 lb. *Super*: 5 HP, 330 lb. Over-all length 63 in., width 24-32 in., height 29 in. Width of cult. 24-32 in., depth 1-4 in. Pneumatic tires, 5 speeds forward, 1-9 MPH, plus reverse. Plow, disc harrow, spike-tooth harrow, cultivator, rotary tiller, also hay rake, sickle bar, lawn mower, roller, leaf mulcher, seeder, snow plow, power sprayer, water pump, portable table saw, air compressor, sulky, dump cart. Sold in New England and Midwest only. Midland Co., So. Milwaukee, Wisc.

ESHELMAN. 1½, 3, 6 H.P. Pneumatic tires. Attachments: plow, cultivator, harrow, cart, sprayer, mower, roller, snow plow. The Eshelman Co., Dept. 396, 119 Light St., Baltimore, Md.

FARM-ETTE. *Model C*: 2 HP, 180 lb. *Model A*: 3½ HP, 260 lb. Adjustable handles. Pneumatic tires, low pressure, deep traction. All-gear drive, throttle control of speed to 4 MPH. 6-shovel cultivator with 2 depth control wheels, double gang disc harrow, spike harrow, plow, also sickle bar, power mower, snow plow and grader, seeder, roller, cart, power take-off. East of Mississippi. Tom Moore Tractor Co., Mantua, Ohio.



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A practical, low priced One Wheel Garden Tractor and Power Mower. Well adapted to close cultivating in narrow rows. Ideal for Mowing hay, weeds and lawns around fences, trees and buildings. Has many other uses for the Suburban and Country Home owner.

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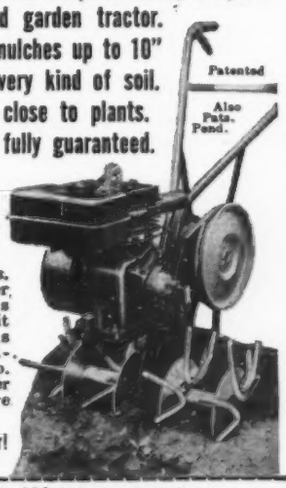

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GARDENERS' GUIDE

FARM KING ALL GEAR TRACTOR. *Model E3256*: 2 HP, 350 lb. (shpg). *Model E3257*: 3 HP, 385 lb. Wheel width adjustable, 18-30 in. heavy duty traction tires, adjustable handle bars. Gear driven, with free wheeling. Power take-off. 6-shovel cultivator with 2 depth control wheels, moldboard plow, disc harrow, also cutter bar, lawn mower, snow plow. National Farm Equipment Co., 142 Greene St., New York 12, N. Y.

GARDENAID. *Two models*: 1½ HP, 210 lb. (net). 2½ HP, 220 lb. Over-all length 64 in., width 31 in., height 44 in. Width of cult. 27 in., depth 3½ in. Adjustable handles, finger control of clutch and throttle, one forward speed, ¼-3 MPH. Adjustable wheels, pneumatic tires, agricultural treads. Power take-off. 5-shovel cultivator with 2 gauge wheels, moldboard plow, disc harrow, spike harrow, also mower, cutter bar, grader and snow plow. Eastern Tractor Mfg. Co., 36 St. James St., Kingston, N. Y.

GARDEN-ALL. 3 new D series models. *Smallest size*: 2 HP, 210 lb. Over-all length 62 in., width 19 in., height 32 in. Width of cult. 36 in., depth 3½ in. Pneumatic traction tires. Speed ½-2½ MPH. Surface cultivator, plow, harrow. Other attachments: lawn mower, grader and snow plow, circular saw, sickle bar, trailer. 4-wheel models up to 8 HP, also available. Garden-All Tractor, Inc., 110 W. Union St., Liberty, Ind.

GEORGE. 2 H.P., 125 lbs. 57 in. long; 37 in. high at handle, 13½ in. wide; 8 in. plant clearance. Speed ½-1½ M.P.H. Attachments: 2 shovel weeder, disc harrow, 4 shovel cultivator, plow, snow blade, snow blower, mower, rotary tiller, dump-cart. George Garden Tools Division Community Industries Association, Sullivan, Ill.

GRAVELY. *Model L*: 5 HP, 325 lb. Over-all length 55 in. (tractor only), width 26 in., height 28 in. (without handles). Width of cultivation 8-36 in., depth to 6 in. Pneumatic tires, diamond tread. All-gear drive, 2 forward speeds and 2 reverse. Rotary plow, moldboard plow, turn plow, surface cultivator, harrow, also lawn mower, snow plow and grader, sickle bar, roller, trailer, circular saw, chain saw, seeder, fertilizer distributor, hay rake, gear reduction wheels, power take-off, rotary power brush, snow blower, and others. Available only through bona fide dealers and distributors. Gravely Motor Plow and Cultivator Co., Dunbar, W. Va.

HOWARD ROTAVATOR. *Bantam Series II*: 2½ H.P., 135 lbs. Length 54 in.; width 13 in. Width of cult. 10 in., depth to 7 in. *Gem Series III*: 11 H.P., 660 lbs. Length 75 in.; width 27 in. Width of cult. 20 in.; depth to 9 in. Double bolted hardened steel blades. Separate controls for engine and rotor. British made. Howard Rotavator Co., Inc., 1600 Davis St., Arlington Hts., Ill.

LE CLAIRE GARDEN CULTIVATOR. 2 H.P. 4 cycle engine. Positive drive clutch. Rubber tires. 25 in. width. Attachments: cultivator, mower, weed cutter, snow plow. Le Claire Mfg. Co., Le Claire, Iowa.

M-E ROTARY TILLER. *Model EC12-C2*: 2 HP. *Model EC12-C3*: 3 HP. 270 lb. (310 lb. shpg.). Over-all length 50 in., width 15 in., height 28 in. Width of cult. 12 in., depth to 6 in. Iron traction wheels. Handle-bars adjustable 2 ways. 2 speeds to 1¼ MPH with throttle control. 8 non-winding universal tines for tilling and cultivating. Milwaukee Equipment Mfg. Co., South Milwaukee, Wisc.

M-E ROTARY TILLER. Model B12-C3. 3 HP, 240 lb. (290 lb. shpg.). Over-all length 70 in., width 12 in., height 32 in. Width of cult. 12 in., depth to 7 in. Zero pressure rubber wheels. Handle-bars adjustable 2 ways. 4 speeds to 4 MPH with throttle control. 8 non-winding tines for tilling and cultivating. Furrower avail. also sickle bar, bulldozer and snowplow, hiller, lawn mower, roller, sulky, dump cart, power take-off pulley drive, and others. Two larger "B" models also mfcd. Milwaukee Equipment Mfg. Co., South Milwaukee, Wisc.

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Many leading nurserymen use ROTO-HOE as an important part of their operations—proof of its work-capacity and efficiency.

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These ROTO-HOE Attachments increase usefulness at small cost

20" ROTO-CUTTER. Excellent rotary lawn mowing, cuts every weed, grass blade regardless of height. Only $40. extra.

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NEW ROTO-ZEPHYR SPRAYER. Now every Roto-Hoe owner can have a high-pressure piston type sprayer complete with jet agitation in 5 gallon tank with hose and gun. Attachment sells for only $77.

NEW SAFE-SPEED EDGER ATTACHMENT. Roto-Hoe's new Safe-Speed Edger allows anyone to quickly and easily edge sidewalks, driveways, flower beds; also will till flower beds and small plots. Attachment sells for $39.50.

ADAPTA-TOOL CART is sturdy steel platform on 2 rubber-tire wheels for use in mounting pump, sprayer, generator, other tools for easy portability and use anywhere. Costs only $14.50 (not including tools).

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You, too, will find ROTO-HOE has many features you want—at a price you can afford. Buy the basic unit now, add attachments from time to time as desired. Your dealer will gladly demonstrate ROTO-HOE and attachments for you. See him NOW. (If your dealer does not handle ROTO-HOE, write us for nearest dealer's name.)

ROTO-HOE & SPRAYER COMPANY
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1. EASY to Buy. Tremendous consumer demand has enabled us to keep our ROTO-HOE price at the low, low 1947 rate of only $134. for the *complete* basic ROTO-HOE unit. Attachments which increase usefulness are proportionately lower. You can afford ROTO-HOE without straining your family budget. There are hundreds of dealers throughout U.S.A. and Canda—there is probably one near you.

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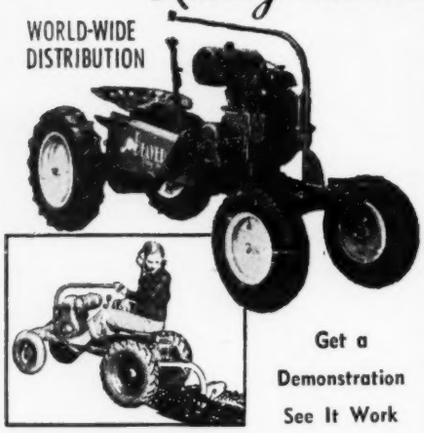

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Let this versatile, powerful, dependable, Beaver 6 h.p. Riding Tractor do your hard work! For just a few cents an hour operating cost, it does jobs other small tractors can't tackle. Complete line of implements to plow, harrow, cultivate, rake, grade, roll, mow lawns and fields, plow snow, saw wood, generate electricity, haul heavy loads, etc. Thousands of enthusiastic owners.

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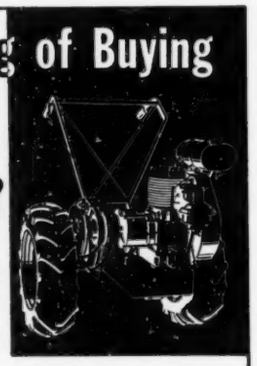
1493 Stratford Ave. Stratford, Conn.

Thinking of Buying A Garden Tractor?



If you have always wanted a garden but were afraid of the time and labor required, your worries are over.

With a full line of implements, and the CHIEF garden tractor, you can do all the jobs to be done in a fraction of the time ordinarily required —and without all of the "back breaking" labor. Anyone can run a CHIEF and find gardening fun. The CHIEF has forward and reverse speed, single grip safety control, 2-3½ H.P., 1 and 2 wheels, and comes in 3 models.

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RED-E TRACTOR CO. RICHFIELD 389 WISCONSIN

GARDENERS' GUIDE

NATIONAL ECONOMY TRACTOR. *Model E3285*: 1½ HP, 110 lb. *Model E3286*: 2 HP, 120 lb. Over-all length 57 in., width 18½ in., height 39 in. Semi-pneumatic tires. Speed 1-2½ MPH. Rotary tiller, 2-gang disc harrow, front hitch cultivator, 2-shovel weeder, also sickle bar, 'dozer blade, lawn mower hitch, rotary snow blower. National Farm Equipment Co., 142 Greene St., New York 12, N. Y.

MUSTANG, (new). 2½ HP, 158 lb. (185 lb. shpg.). Width of cult. 12, 16, or 20 in., depth to 10 in. Universal non-winding, self-sharpening rotary tines, guaranteed against breakage. Complete selection of attachments avail. soon. Milwaukee Equipment Mfg. Co., South Milwaukee, Wisc.

PAGE GARDEN TRACTOR. *Model ZA-6FS:* 3 HP, 317 lb. *Model ZA-8FS:* 3HP, 370 lb. Both equipped with 4-tooth cultivator, lights, reverse gear, pneumatic or semi-pneumatic tires. Regular plow, rotary tines, disc harrow, spike-tooth harrow, furrower, avail.; also grader, roller, lawn mower, snow plow, trailer, buzz saw, sprayer, pump, compressor, and many others. Pioneer Mfg. Co., 1910 S. 81st St., Milwaukee 14, Wisc.

PLANET JR. *Model BP1:* 1½ H.P. *Model 8B:* 2½ H.P. *Model HB:* 3 H.P. *Model HW:* 5 H.P. Wheel width adjustable, 15-25½ in. Pneumatic tires. Attachments: plow, disc harrow, seeder, cultivator, trailer cart, snow plow and grader, field mower, fertilizer distributor. S. L. Allen & Co., 5th St. and Glenwood Ave., Philadelphia 40, Pa.

ROTO-HOE. 2 HP, 98 lb. Over-all length 29 in., width 16 in., height 20 in. plus handles. Width of cult. 12 in., depth to 6 in. Semi-pneumatic tires, variable speed. Rotary tines provided. Other attachments: lawn mower, snow plow, sidewalk edger. Roto-Hoe and Sprayer Co., Newbury, Ohio.

ROTOTILLER. *Model 3*: 3 HP, 335 lb. (shpg). Wheel width 20 in., tiller width 20 in. Adjustable handle bar. Pneumatic tires, tractor bar tread. 3 speeds forward, one reverse. Equipped with deep-digging tines and depth control regulator. For other attachments see Model 2. Rototiller, Inc., 102nd St. & Ninth Ave., Troy, N. Y.

ROTOTILLER. *Model 2*: 2 HP, 260 lb. (shpg), 205 lb. (net). Over-all length 40 in., width 21 in., wheel width 18 in., height 32 in. Width of cult. 20 in., depth to 8 in. Pneumatic diamond-tread tires. 4 speeds. Equipped with deep-digging tines and depth control regulator. Other attachments: composter, knife tines, furrower, also lawn mower, sickle bar, mulch mower, generator, power wheelbarrow, dump-barrow-tank, trailer, electric chain saw, snow plow and light bulldozer, roller water pump, and others. Rototiller, Inc., 102nd St. & Ninth Ave., Troy, N. Y.

ROTOTILLER. *Model T*: (corresponding to the former Roto-ette): 1½ HP, 235 lb. (shpg). Over-all wheel width 18 in., tiller width 16 in. Pneumatic diamond tread tires. Four speeds. Equipped with deep-digging tines and depth control regulator. For other attachments see Model 2. Rototiller, Inc., 102nd St. & Ninth Ave., Troy, N. Y.

SIMAR (original Swiss rotary tiller). *Model B21*: 3 HP, 255 lb. (net). Over-all length 65 in., width 20 in., height 44 in. Width of cult. 13 in. standard, 8-18 in. with extra equipment; depth 1-6 in. 2-cycle motor, 1 speed forward. Iron tread or pneumatic tires, rotary tines. *Model B20*: Geared high for shallower, faster work, otherwise the same. Two-gear models of 5 and 8 HP also made. E. E. Geiger Co., North Wales, Pa.

SIMPLICITY. *Model L-1*: 2 HP, 183 lb. (shpg). *Model M-1*: 3 HP, 218 lb. Adjustable handles. Pneumatic tires, tractor tread, adjustable. 5 forward speeds to 5½ MPH. Equipped with tool kit. 6-shovel cultivator with depth control, disc harrow, spike harrow, plow, and other cultivating tools, also power take-off, lawn mower, 2-gang mower, sickle bar, rotary weed cutter, log saw, trailer, snow plow and bulldozer. Available through authorized agents. Simplicity Mfg. Co., Port Washington, Wisc.

SIMPLICITY. *Model V* (new): 5 HP, 3 forward speeds, one reverse. Rotary tiller, 10-in. plow, 42-in. snow plow, rotary weed cutter avail., plus attachments listed for Models L-1 and M-1. Simplicity Mfg. Co., Port Washington, Wisc.

SIMPLICITY. *Model J.* (new) 2 HP, 2 forward speeds. Power driven attachments avail.; 18-in. rotary lawn mower, 20-in. reel type lawn mower, rotary cultivator, rotary snow plow, and rotary weed cutter. Simplicity Mfg. Co., Port Washington, Wisc.

WINDOLPH GARDEN MAKER. *Standard model*: 1½ HP, 78 lb. *Model M*: 2½ HP, 106 lb. *Special*: 3 HP, 120 lb. New model for '53. 16-in. rotary tiller on all; hoe type tines, worm drive in oil, DuAll rear wheels. Width of cult. 7-20 in. Cultivator, weed hoe, furrower, weeder and clod buster wheels, also sickle bar, lawn mower, power sprayer, pump. Windolph Tractor Co., 826 S. W. 21st Ave., Portland 5, Ore.

Three- and Four-Wheeled Cultivators

FARMALL CUB. Four-wheeled. Length 99 in.; width 64 in.; height 68 in. 4 cylinder engine. Pneumatic tires. Weight 1430 lbs. Attachments: cultivator, moldboard plow, disc plow. Smallest of Farmall tractors. International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

STANDARD-BANTAM. 3 HP, 210 lb. (235 lb. shpg.), 290 lb. with cult. equip. attached. Over-all length 50 in., width 30 in., height 28 in. Width of cult. adjust. to 34 in., depth 4-6 in. Rear tires pneumatic, front tire semi-solid. 2 speeds forward and reverse. Three wheeled. Cultivator, disc spiker, disc harrow, also gang mowers, sweeper, roller, snow plow and grader, trailer. Standard Mfg. & Sales Co., Lebanon, Ind.

Better SOIL—Better Garden

The best soil for a mixed flower border is a sandy loam, slightly acid (pH 6.5) in reaction, with manure worked in.

Alluvial soils, which are simply and purely top soils from another land, are the most fertile of all.

Do not grow acid-loving and lime-loving plants together.

Grow chiefly lime-loving plants near foundations of buildings, because there is bound to be a deposit of lime from the construction material. Acid-loving plants usually do very poorly near foundations for this reason.

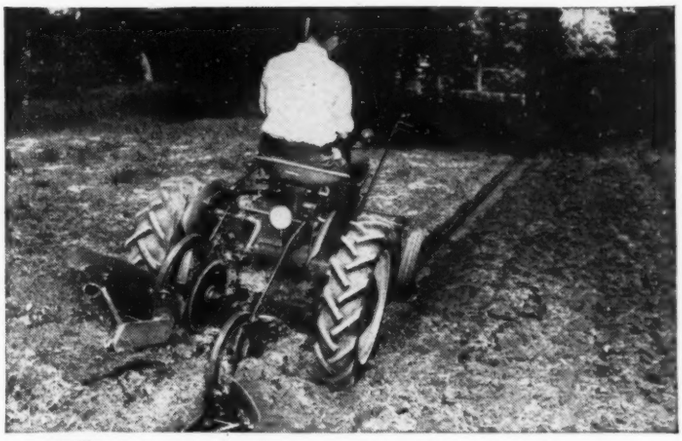
As most soils which are used for succulents usually harbor nematodes, sterilize these soils to reduce this hazard.

Any vegetables will usually grow in sandy soils.

You'll eliminate hours of hand-weeding and hard-to-get hired help with the CUB and this close-working, front-mounted cultivator. You'll use less than three quarts of fuel an hour.

The CUB with trailer attached makes short work of hauling flats, fertilizer, tools and boxes. It maneuvers easily in small work areas.

With the Farmall Cub and this mounted two-way plow, you can work *all* the ground in small plots. Notice the smooth, level job that's being done. Nearly fifty implements are available for the Cub.



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"We could not possibly get along without our Farmall Cub," states a California bulb grower. "We use it for all of our work and are very satisfied with the job it does. We never have to hand-weed any more."

Bulb farms, flower growers, nurseries—the country over—are keeping ahead of weather and markets, and increasing their profits by relying on the versatile, low-cost, easy-handling Farmall CUB. Because the busy CUB does so many jobs so well, costly, hard-to-get hand labor is greatly reduced.

Whether you produce bulbs, flowers, or nursery stock on a large or limited scale, the Farmall CUB is the most useful power you can own.

* * *

To learn more about the CUB—call your International Harvester dealer or district office today and ask for a free Cub demonstration on your jobs. If you live in or near Chicago, call C. A. Mertz, ANdover 3-4200; in New York, call H. F. Burton, MUrrayhill 6-3438.

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Please send me information telling how the CUB has solved power job problems similar to mine.

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WITH THE *NEW* LOW-COST ARIENS

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ONLY Ariens Yardster has *all* these Features:

- Two 10" cog-type wheels; optional wheel drive.
- Tip-toe safety clutch for easy starting, idling Briggs & Stratton 6S engine. Complete hood protection.
- Full 12" tillage; up to 6" deep.
- Sealed lubrication; ball-bearing rotor.
- 1-piece, easy-grip, adjustable handlebar.
- 4-bolt attachment to tractor—on and off in minutes.

- PREPARE GARDEN FOR PLANTING *WITHOUT* PLOWING, DISCING, HARROWING, HAND SPADING OR FORKING . . .

- CULTIVATE CLOSE TO PLANTS, UNDER LOW BRANCHES, KILL WEEDS, KEEP GARDEN NEAT AND CLEAN WITHOUT HAND HOEING BACKACHES . . .

The new Ariens Yardster does hours of tedious work in minutes—ends gardening "backaches"! Compare its looks—precision construction—performance with *any* gardening equipment at *any* price—and see why it's America's finest, handiest tool for all-season garden, lawn and yard care. Priced amazingly low!

See your dealer or write

ROTARY MOWER. Cuts 16" swath. All steel hood. Mows finest lawns; chops up toughest grass and weeds. Adjustable cutting height: 1" to 3". On and off in minutes!

ROTARY SNO-THRO. Throws (not blows) snow and slush up to 15 ft. away. Self-propelled. Cuts 17" path—height control; 0" to 2" for paved or gravel areas. Fingertip clutch.

Ariens

MAKERS OF THE ARIENS HEAVY-DUTY TILLER

137 CALUMET ST. BRILLION, WIS.

MANUFACTURERS OF AMERICA'S FIRST ROTARY TILLAGE—STILL AMERICA'S BEST

GARDENERS' GUIDE

Caterpillar Tread and Sulky Models

VIKING. (new) Multi-purpose transportation sulky, 3 models. 3.6 HP. Over-all length 62 in., width 32½ in., height 40 in. Width of cult. 18-26 in., depth 1-5 in. Two wheels, pneumatic tires, 4 speeds. Regular plow, surface cultivator, harrow, grader, also lawn mower, sickle bar, circular saw, snow plow, trailer and others. American Farm Machinery Co., 1030 33rd Ave. S. E., Minneapolis, Minn.

BEAVER. 6 HP, 550 lb., sulky. Over-all length 67 in., width 30 in., height 36 in. Width of cult. up to 36 in., depth 6 in., 4 wheels, pneumatic tires, speed variable to 5 MPH. Surface cultivator, harrow, regular plow, grader, also roller, lawn mower, sickle bar, scarifier, hayrake, circular saw, snow plow and trailer. Beaver Tractor Co., Inc., 1495 Stratford Ave., Stratford, Conn.

CHAIN TRED DELUX TRACTOR. 6 HP, 450 lb., iron-tread Caterpillar wheels. Over-all length-37 in., width 20 in., height 40 in., depth to 10 in. Width of cult. 20 in. 2 forward speeds and reverse. Rotary plow, regular plow, rotary tines, harrow, surface cultivator, grader, also sickle bar, snow plow and trailer. Windolph Tractor Co., 826 S. W. 21st Ave., Portland 5, Ore.

FERTILIZERS

The *three figures* separated by dashes in the formula for a fertilizer indicate, always in the same order, the percentage of available *nitrogen, phosphorus,* and *potassium* (N-P-K) in each mixture. A general-purpose fertilizer may be designated as 5-10-5 or in a similar proportion.

Where *root stimulation* is desired, a higher percentage of potassium should be sought. That is, the third figure should be in higher proportion, such as 5-10-10.

If *heavy foliage*—as on lawns, trees, or evergreen shrubs—is the aim, ample nitrogen and additional phosphorus will be needed. Such a formula might read 6-10-4.

For a maximum flowering, as against leaf and stem growth, a smaller proportion of nitrogen is sometimes advisable, such as 0-10-5 or 2-10-5.

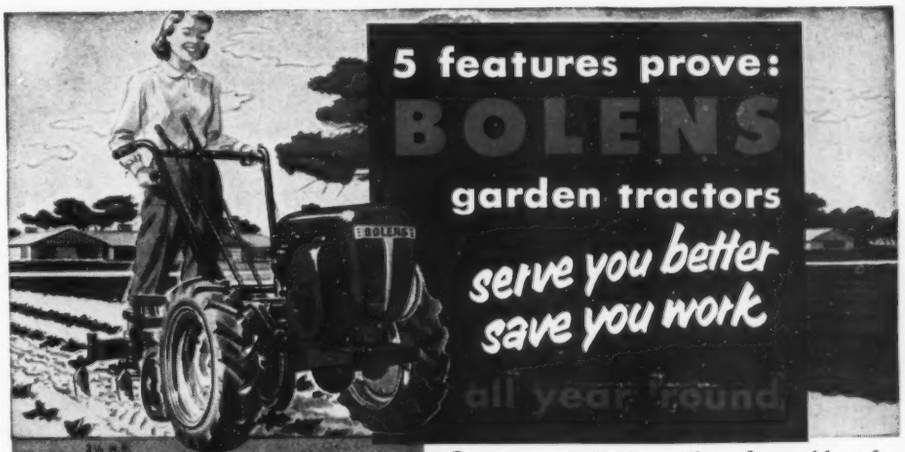
The rest of the material, making up the 100 percent, is generally a filler which prevents the chemicals from burning the plants and makes for ease in spreading. Frequently it contains required trace elements.

The *organic fertilizers* have much lower percentages of each major element. Their formulas may read something like 2-2-1. While these fertilize at a slower rate, because their elements do not dissolve at once, they improve the texture of the soil. By adding non-soluble bulk they provide better æration for the roots and create a balance between sogginess and drought. With them there is little danger of burning delicate plant tissues.

Soluble fertilizers may be either inorganic or organic. The inorganic ones are the highest in concentration of nitrogen, phosphorus, and potassium, with formulas reading 15-30-15 or thereabouts. They must therefore be used with the greatest of care. When correctly handled, results are immediate. Some of these are recommended for direct foliage feeding.

Combination fertilizers contain both organic and inorganic materials. The organic portion is slow-acting, the inorganic is fast. Thus they do double duty in the garden by giving both immediate and long-lasting effects.

Acidity or alkalinity is designated by figures following the arbitrary symbol pH. The sign of a neutral soil is pH 7. Below this figure soils are acid; above it they are alkaline. Some fertilizers are formulated to increase or decrease soil acidity. Ornamental evergreens and all members of the Heath family (rhododendrons, azaleas, blueberries, and such) require an acid soil. Most food crops prefer an alkaline soil. Garden flowers generally thrive in a neutral soil.



Only Bolens offers so much for your money

1. *Quicker Hitching.* Patented Snap-Hitch for fast, easy attachment of all implements.
2. *Smoother Running.* Rolls on precision needle bearings. Driven by powerful engine.
3. *Simple to Operate.* Responds instantly to finger-tip controls. Perfect balance.
4. *Easier, Shorter Turns.* Proved most maneuverable by actual test.
5. *Longer Life.* Rugged, compact construction for years of trouble-free service.

7 tractor models
111 tools and attachments
5 rotary mowers

for countless jobs all year 'round

Spare yourself the toil and trouble of hundreds of jobs around the yard, farm or garden. Let a Bolens tractor do the work *faster* and *easier.*

Compare feature for feature. It's proof of the labor-saving, money-saving advantages you get from a BOLENS — America's *first* and *finest* garden tractor *line.* There's a BOLENS to fit your needs and pocketbook. Ask your dealer for demonstration.

Please send name of nearest dealer and free illustrated literature.

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City _____

Bolens Products Division
Food Machinery and Chemical Corp.
295-3 S. Park St., Port Washington, Wis.

VIMIX

The Complete water-soluble Plant Food for the modern Gardener

EVERY HOME OWNER has a desire for the finest garden in the neighborhood. This desire can become a reality through the use of VIMIX, the scientifically balanced plant food.

Plants will grow taller and flowers will be larger through the use of VIMIX. It can be used with excellent results on any houseplants, including African violets, Gloxinias, Begonias, Amaryllis, Philodendron, Ivy, etc.

And as for your outdoor plants, Roses love it. Shrubs grow taller and healthier from its stimulating minerals. Lawns actually sparkle from its monthly application.

The following are some VIMIX facts:

VIMIX is a plant tonic.
VIMIX is completely balanced 100% water soluble plant food 16-16-16.
VIMIX contains Vitamins.
VIMIX is fortified with nutritional elements usually deficient in garden soils.
VIMIX is clean and safe for the amateur or advanced gardener to use.

IMPORTANT NOTICE VIMIX is not available at Seed Stores or Hardware Stores. Write Direct to VIMIX CHEMICALS.

VIMIX Chemicals
Lewes, Delaware

Please send me:_____boxes of VIMIX @_____

My check_____money order_____is attached.

ALL VIMIX PRICES POST PAID
1 box (makes 36 gallons).....$1.00
4 boxes (makes 144 gallons)..... 3.00
7 boxes (makes 252 gallons)..... 5.00
MONEY BACK GUARANTEE

Name_____

Address_____

City_____State_____

ACP Soil Conditioner to prepare the soil
Gro-Stuf to supply the plant food

USE THESE NEW PRODUCTS TO GROW THE FINEST FLOWERS AND VEGETABLES

ACP SOIL CONDITIONER

With this brand-new soil conditioner you can turn poor soil into loose, workable topsoil . . . the kind that makes an ideal base for growing prize-winning flowers, vegetables, trees and shrubs. Use it as dust on moist soil; spray it on dry soil.

ACP Soil Conditioner combines the two best-known soil-conditioning chemicals (including the only time-tested one), plus plant hormones, fertilizer, and essential mineral elements. For this reason, it works on the widest variety of soils and supplies many of the benefits they may require.

8-oz. shaker canister $1
2½-lb. shaker canister $3.55
10-lb. canister $10.90

GRO-STUF The new concentrated liquid fertilizer...for foliage or root feeding

Here's the way to give your plants all the nourishment they need for luxuriant, healthy growth. Gro-Stuf is a complete, 20-20-20 plant food—nitrogen, 20%; phosphoric acid, 20%; potash, 20%; plus hormones, plus trace elements. Ask your garden supply store for Gro-Stuf . . . to make stuff grow!

1-lb. can $1.25 **4-lb. can $3.75**

Ask for ACP Products at your garden supply store

Chemicals ACP Processes

AMERICAN CHEMICAL PAINT CO.
AMBLER, PA., NILES, CALIF.

Makers of Weedone,® Weedone Crab Grass Killer, Weedust,® Rootone,® Transplantone,® Fruitone,® Seedtone, ACP Rose & Floral Dust, ACP Fruit Tree Spray

GARDENERS'

ORGANIC FERTILIZERS

ACTUMUS. A soluble organic powder, to be used either dry or in solution, when sowing, transplanting, for periodic feeding, or for treating sawdust before digging it into soil. Designed to encourage beneficial soil organisms and induce soil crumb structure. 1 lb. per 450 sq. ft. (approx. 3½ oz. per 100 sq. ft.), slow-acting. Avail. in quan. from ¼ to 100 lb. in stores or from Luckie Organic Gardens, Sumneytown Pike, Kulpsville, Pa.; Burkleigh Co., Towson 4, Md.; Breck's, Breck Bldg., Boston 10., Mass.; Peter Henderson-Stumpp & Walter Co., 132 Church St., New York 7, N. Y.; Organic Supplies, P. O. Box 820, Pittsfield, Mass.; Foreign Products Corp., 1270 Broadway, New York 1, N. Y.

AGRINITE. All-organic nitrogen fertilizer, 8.25% nitrogen. Agricultural Chemical Co., 50 Church St., New York 7, N. Y.

BOVUNG. Finely ground dried cow manure, 2-1-1. Applied dry or wet, 20 lb. per 100 sq. ft. Avail. only on eastern seaboard. 50-lb. bags. Walker-Gordon Laboratory Co., Plainsboro, N. J.

DAIRI-ORGANIC COMPOST. A decomposed, screened cow manure, approx. 2-2-1 plus 5 principal trace elements, neutral. 5 lb. per 100 sq. ft., av. Avail. in trial package, also in 10, 25, 50 & 100 lb. bags in stores or by mail from Dairi-Organic Compost Co., Menomonee Falls, Wis.

DRICONURE. A granulated form of dried poultry and farm manure combined with sphagnum peat-moss, 2-2-1; applied dry or mixed with water, 5-6 lbs. per 100 sq. ft. or 15-18 lbs. for deeper fertilization. Avail. in 5 size packages, 1-80 lbs. in stores or by mail from Atkins & Durbrow, 165 John St., New York 38, N. Y.

ESPOMA. A finely ground compound, 3-2-1 plus minor elements. Applied dry, av. 5 lbs. per 100 per sq. ft. Avail. in 5, 10, 25, 50 and 100 lb. bags in Pa., N. Y., N. J., Del. & Conn. or by mail. Espoma Co., Millville, N. J.

EXTRACT OF HUMUS. An organic plant food with an alginate base, also containing peat, bacteria, and plant nutrients. For top-dressing or digging-in once a year, 10-20 lb. per 100 sq. ft. Sold in 7, 14, 28, 56, 100, and 500-lb. bags in England only. By mail order from Finch & Knight, Ltd., Bracknell, Berkshire, England.

F & B LONGHORN BRAND CATTLE MANURE. In powder form, 2-1-2, applied dry. Avail. through retail stores. Faesy & Besthoff, 325 Spring St., New York 13, N. Y.

FERTILIUM. A general-purpose plant food, N-P-K not stated; pH 7. In granular form, applied dry. Avail. in stores or by mail from Fraim Mfg. Co., Granby at 39th St., Norfolk, Va. Mfc. by Soil-Tone Corp., Plymouth, N. C.

GREEN NUTRO. Granular material, 2-2-5 or 0-2-5. Av. 10 lb. per 100 sq. ft. Eastern States Soilbuilders, Sharpsburg, Md.

GROW POWER COMPOST. A moist organic material of mixed powder and granules containing added minerals, hormones, and vitamins, activated with soil microorganisms. Applied in water or as is, 2-4 lb. per 100 sq. ft. Avail. chiefly through private-label packagers or by mail from Benson-Maclean, Bridgeton, Ind.

MILORGANITE. Activated sludge free of weed seeds. Slow acting. Milwaukee Sewerage Co., Milwaukee, Wisc.

NO-FILLER ORGANIC. A general-purpose organic and combination in semi-powder and liquid form. 15 formulas. Goulard & Olena, Skillman, N. J.

PEP-TO-GROW. Organic (formula not given). Use 4 lb. per 100 sq. ft. or, for tree feeding in holes, 1 lb. for each in. caliper of tree to 6 in.; 1½ lb. per in. to 12 in.; 2 lb. per in. for trees of 12-in. caliper or larger. Waynesboro Nurseries, Waynesboro, Va.

PREMIER-NURE. Peat moss combined with animal manures, 2-1-1, in powder form. Applied dry, av. 20 lb. per 100 sq. ft. Avail. in 2-bu.-50-lb. bags, also 5 and 100-lb., from dealers in garden supplies in East and Middle West. Premier Peat Moss Corp., 535 Fifth Ave., New York, N. Y.

READY-GROW. An organic liquid made from chlorophyll, 0.08-2.16-0.26 plus some trace elements. Fast-acting. 2 oz. in 2 gal. water sufficient for 100 sq. ft. Can be used for rooting cuttings, for water culture, as pesticide, or in chicken feed. Avail. in 3-oz. trial bottle, also pt., qt., half-gal., and gal. bottles. Alfred Kittel, 3010 Tilden Ave., Brooklyn 26, N. Y.

SKIMGROW. A powder containing skim milk, granite dust, bacteria, hormones, and vitamins, for dry or wet application, 1 lb. per 100 sq. ft., slow-acting. A new product avail. only by mail from Organic Products Co., 235 Halsey St., Newark, N. J.

SUPER GRO COMPOST. A plant food composed of sheep manure, meat scraps, bone meal, hoofs, blood and minerals, 5 lb. per 100 sq. ft. Distr. in Minn. and Wisc. Northern Field Seed Co., Winona, Minn.

GENERAL-PURPOSE FERTILIZERS

(Organic, Inorganic, and Combination)

ACME. All legal grades approved by N. & S. C. Depts. of Agric. sold in 100 and 200-lb. bags through dealers in North & South Carolina. Analyses guaranteed. Acme Fertilizer Co., Wilmington, N. C.

AGRICO FOR GARDENS. A combination granular material, 5-10-5; applied dry 3 lb. per 100 sq. ft. Avail. from Mich. eastward. American Agricultural Chemical Co., 50 Church St., New York 7, N. Y.

DIXIE-GRO. A 10% organic powder; 5-10-5 also 6-8-6; pH 5.0 basic. Applied dry 4-5 lb. per 100 sq. ft. Immediately soluble, but part slow-acting. Avail. in N. and S. Carolina or by mail. Dixie Guano Co., Box 152, Laurinburg, N. C.

F & B HIGH ORGANIC PELLETIZED ALL-PURPOSE 6-12-6. 25% of the nitrogen is organic. Applied in pellet form. Avail. in retail stores. Faesy & Besthoff, Inc., 325 Spring St., New York 13, N. Y.

GAVIOTA. A neutral combination powder, 6-9-6. Applied dry 3-4 lb. per 100 sq. ft. av. Avail. in west. states or by mail. Pacific Guano Co., 1832 Second St., Berkeley, Cal.

GRO-FAST PLANT FOOD. Combination, 5-10-5 plus all minor elements; 50% organic nitrogen. Applied dry, 3 lb. per

"Better SOIL—Better Garden"—*Flower Grower*

Hyperhumus is a black, finely textured form of organic matter which is naturally impregnated with lime, thus making it nearly neutral in reaction. It is free from weed seed, and excellent for improving the physical condition of many types of soils, both light and heavy.

Delphiniums require considerably more nitrogen than most other garden flowers.

Cultivation is not always necessary to control weeds. In dry spells excessive cultivation results in greater loss of water.

GUIDE

100 sq. ft. Avail. in New Eng. N. Y. and N. J. or by mail. Rogers & Hubbard Co., Box 233, Portland, Conn.

KAPCO PITT-ORGANITE. An activated sanitary sewage sludge; 5.5-4.5-0. Applied 3-5 lbs. per 100 sq. ft. Avail. in stores or by mail. Kelly Agric. Products Co., 603 Walnut St., McKeesport, Pa.

LOMA. Available in 5-10-5 and 8-8-8 formulas. Contains no filler. Tennessee Corp., 1619 Grant Bldg., Atlanta, Ga.

NUTRO. A pelletized, dry inorganic fertilizer; 5-10-5. Applied dry, 4 lb. per 100 sq. ft. Fast-acting. A new product of limited distribution. Smith-Douglass Co., Board of Trade Building, Norfolk, Va.

PLANT PRIME. A fibrous combination fertilizer with 70% M-16 Super-Humus (by weight) as a filler, 3-5-3 or 4-7-5, pH approx. 6.0. Applied dry, it is partly soluble at once upon watering. 5 lb. per 100 sq. ft. or 1 lb. per ft. spread of shrub. Fast-acting and long-lasting. M-16 Products, Inc., P. O. Box 450, Leesburg, Fla.

PRIZEGRO. A 5-10-5 combination, mainly organic, containing fish, blood, potash, and boron. In 100-lb. bags. Goulard & Olena, Skillman, N. J.

SUPERGRO. A combination soil builder; 2-2-1 also 4-2-1, plus 30 trace elements and calcium. Applied as powder, 4 lb. per 100 sq. ft., slow-acting. Avail. in central states or by mail from Winona, Minn., Millhall, Pa., or Milbank, S. D. Northern Field Seed Co., Winona, Minn.

VERTAGREEN. Armour Fertilizer Works, Carteret, N. J.

VIGORO. Inorganic N-P-K plus minor elements in granular form. Applied dry 3 lbs. per 100 sq. ft. Avail. in stores or by mail through seed catalogs. Swift & Co., Plant Food Div., Chicago 9, Ill.

WILGRO. A combination powder 5-10-5 for lawns and gardens, applied dry 2 lb. per 100 sq. ft., medium-fast. Avail. only in Midwest. Wilson & Co., 4100 S. Ashland Av., Chicago 9, Ill.

SOLUBLE FERTILIZERS

(Organic, Inorganic, and Combination)

ALFCO. A fast-acting, general-purpose liquid, 5-10-5 or 10-12-10. 5 oz. in 5 gal. water per 100 sq. ft. Avail. only in Southeast. Alfco Liquid Fert. Co. P. O. Box 1662, Charlotte, N. C.

ATLAS FISH EMULSION. An organic liquid, 5½-2-2 plus 19 minor elements, nonburning and deodorized. 5-6 oz. per 100 sq. ft. Fast-acting and long-lasting. Avail. in 7 sizes from Atlas Fish Emulsion Co., 1 Drumm St., San Francisco, Calif.

BIO-GRO. A liquid fish fertilizer and organic plant food, 10-5-5, plus micronutrients and trace elements, pH 6.8. May be used for foliage feeding, or for soilless culture, 1 pt. in 20 gal. of water per 100 sq. ft. Avail. in 10 sizes from ¼ pt. to tank car, at Garden supply and florist shops or by mail from Bioproducts, Warrenton, Ore.

F & B 15-30-15 STARTER GROWER ALL-PURPOSE. An inorganic granular powder containing minor elements, also vitamins B_1 and C. Applied either dry or wet, immediately soluble. Avail. in retail stores. Faesy & Besthoff, Inc., 325 Spring St., New York 13, N. Y.

FABULIFE. A fast-acting water-soluble powder for general garden use, 15-30-15. 1 tbsp. in 1 gal. water covers approx. 320 sq. ft., applied with sprinkling can or hose proportioner. Canisters of 1 and 5 lb. available in dept. and hardware stores. Henry A. Dreer, Inc., 105 N. Fifth St., Philadelphia 6, Pa.

FERTILEZE. A fast-acting combination for general use. 20-10-20 plus trace elements. Approx. 10 oz. per 100 sq. ft. applied in water. Avail. by mail from Nutritional Concentrates, Inc., 3090 W. Liberty Ave., Pittsburgh 16, Pa.

NEW LIFE FOR YOUR FLOWERS

Rich, radiant, lustrous flowers of rare color and beauty cannot grow in soil poor in minerals. Soil containing sufficient minerals produces healthy productive plants. Minerals are just as essential to healthy plants as they are to the human body — You don't neglect your own health — but how about the health of your plants? ES-MIN-EL contains these essential mineral elements: Boron, Copper, Manganese, Iron, Zinc and Magnesium. For healthier plants and rich, radiant, beautiful flowers, apply ES-MIN-EL to your soil today!

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SOIL | APPLICATION

ES-MIN-EL
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SPRAY OR DUST

ES-MIN-EL is now available in spray or dust form. If you haven't mineralized your soil you can feed these essential minerals to your plants through the leaves and stems — ES-MIN-EL spray or dust is a neutral form of Copper, Manganese and Zinc.

Free Booklet

Send card or letter to Tennessee Corp., Grant Building, Atlanta, Georgia.

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Energized Vertagreen®

Brings Golf-Green Beauty To Your Lawn

Packed in Attractive 5, 10, 25, 50, and 100 Pound Bags

Ever admire the fresh, carpet-like beauty of a golf green? You can have that same velvet-green beauty in your lawn when you feed energized Vertagreen, the sure, proved way to better growing results. Vertagreen brings bright, new beauty to flowers, shrubs and trees, too, because it supplies the vital elements and extra nourishment plants need for strong, healthy growth. And complete, better-balanced Vertagreen makes fast-growing, vitamin-rich vegetables because it feeds all plants more completely: (1) roots, (2) stems, leaves, (3) flowers, fruits, vegetables. See your garden supply dealer today! Get energized Vertagreen, America's fastest growing plant food.

ARMOUR FERTILIZER WORKS

GARDENERS' GUIDE

FOLIUM. An inorganic immediately soluble granule, 20-20-20. 2 tsp. in water per 100 sq. ft. Fast acting. Can be used for foliage feeding. Unique penetrant minimizes chance of leaf burn. Avail. in stores. Monsanto Chemical Co., 1700 S. Second St., St. Louis, Mo.

GREEN FINGERS PLANT FOOD. An inorganic product in granule or powder form, 15-30-15. 1 lb. applied in solution to 100 sq. ft.; immediately soluble, fast acting. Avail. in stores or by mail from Nu-Way Plant Food Co., Box 457, Streator, Ill.

GRO-STUF. A combination powder for general use, 20-20-20; plus zinc, copper, manganese, boron. 2 oz. per 100 sq. ft. applied in solution, fast acting. Can be used for foliage feeding. Avail. in stores. American Chemical Paint Co., Ambler, Pa.

HYDROGANIC. 12-13-6 liquid plant food. In qt. and gal. containers and 55-gal. drums. 1 qt. in 40 qt. water for 4,200 sq. ft. lawn. Goulard & Olena, Skillman, N. J.

HY-GRO. A combination granular compound, 13-26-13 plus 8 minor elements, and a rooting hormone (3-indolebutyric acid 0.156 mg. per oz.); pH 6 when diluted with distilled water. Used as a starter solution, for foliage feeding or for ground feeding, the latter at the rate of ½ gal. per 100 sq. ft. every 2 wks. during growing season. Also in hydroponics, 1 lb. per 100 gal. of water. Avail. in stores. McCormick & Co., Inc., McCormick Building, Baltimore 2, Md.

HYPONEX PLANT FOOD. An inorganic powder, 7-6-19 plus calcium, magnesium, and trace elements. Applied either dry or wet as a general-purpose plant food. Approx. 5 oz. per 100 sq. ft., immediately soluble, fast-acting. Used in soil, sand or in water culture. Avail. in stores or by mail from Hydroponic Chemical Co., Inc., Copley, O.

INSTANT VIGORO. An immediately soluble, high analysis crystalline powder; fast-acting. Can be used for foliage feeding. Avail. in stores. Swift & Co., Plant Food Div., Chicago 9, Ill.

KAPCO 15-30-15 SOLUBLE. A combination powder applied wet, immediately soluble. Part fast, part slow-acting. Avail. in stores or by mail from Kelly Agric. Products Co., 603 Walnut St., McKeesport, Pa.

MANNA. A concentrated, soluble, organic powder, 17-8½-8½, plus 5 hormones, 5 vitamins, special activators, and all trace elements. "Stops root shock in transplanting." Applied either dry or in solution, 1-3 oz. per 100 sq. ft. Fast-acting. May be used for foliage feeding. Avail. in stores or by mail from Gardener's Cupboard, P. O. Box 623, Chicago 90, Ill., or Benson-Maclean, Bridgeton, Ind.

MAXWELL'S. A combination powder, 15-15-15 plus minor elements and growth-regulating hormones; pH 6.5; the formulations varied according to crop, soil, and climate. Soil sample and information on plant material must accompany inquiry and/or order. 1 oz. dry material in solution per 100 sq. ft.; fast-acting. Distributed mainly in Pa., Md., Del., & Va. Avail. only directly from Maxwell D. Bertuch, 3128 Oakfield Ave., Baltimore 16, Md.

MIRACLE-GRO. An inorganic powder, 15-30-15; applied wet as a quick-action, liquid plant food. Can be used for foliage feeding. Avail. in stores or by mail from Stern's Miracle-Gro, Inc., Geneva, N. Y.

NA-CHURS LIQUID. 7-14-7 plus calcium, magnesium, sulphur, and trace elements; pH 6.5. An inorganic compound, fast-acting. May be applied through mixing unit in hose, 1 gal. for 3,000 sq. ft. of lawn. Avail. in stores in 1 and 5-gal. cans or by mail. Na-Churs Plant Food Co., 421 Monroe St., Marion, Ohio.

PETERS SPECIAL 20-20-20. An inorganic powder containing minor elements, applied 12 oz. per 100 sq. ft. in solution; immediately soluble and fast-acting. Avail. in eastern U. S. from Robert B. Peters Co., 779 N. 7th St., Allentown, Pa.

Pride of Tokyo's Imperial Gardens

EXOTIC GIANT-FLOWERED JAPANESE AZALEAS

Royal Azalea Malvatica and Vuykiana Hybrids

Guaranteed to bloom 50 days after planting

Only if you've seen Azaleas in Japan can you imagine such colors! Brilliant beyond description—giant iridescent flowers—with fluorescent qualities that glow even in the dusk!

Stern's Nurseries proudly presents the successful new cross between the old-fashioned, hardy free-flowering types and the tender, colorful greenhouse Azalea. Now—for the first time you can enjoy the true beauty of magnificent greenhouse Azaleas outdoors—in your own garden. Now available in unexcelled hardiness, these rare varieties thrive in areas where temperatures drop to zero or slightly below.

These magnificent grafted species are ready to burst into exquisite flowers *this* year. Flowering early in May, they are the first Azaleas to bloom. For most spectacular effect, use these new Stern's Japanese Hybrids as a low-growing foundation planting—as a spreading low border in front of tall-growing European-type Azaleas or other shrub plantings—as a stunning specimen on the lawn, planted in bold masses so that their glowing colors can be seen for miles. You'll get year 'round pleasure, for these Stern's Japanese Azaleas are semi-evergreen—they hold their leaves almost through the winter. A lifetime investment in garden beauty—with little care, they will increase in size and beauty for years.

STERN'S NURSERIES
Dept. G, Geneva, N. Y.

STERN'S Imperial Gardens Collection

Hardy Japanese Azalea—All six varieties as listed—all different colors. Special **$22.00** postpaid

Delivery at proper planting time in your section

New! Exclusive! Sensational Colors

MIKADO (BEETHOVEN) Lavender-pink.

TOMATE-BOKU (FEDORA) Deep pink.

TAIKOON (JOHN CAIRNS) Non-fading blood-red.

KEWANEE (KATHLEEN) Rosy red.

KINSUI (ORANGE BEAUTY) Bright orange.

ISANI-GIDUI (PALESTRINA) Ivory-white.

Heavy, well branched, No. 1 plants. Covered with flower buds—guaranteed to bloom this Spring. 3 year plants, 12-15 inches high.

EACH **$4.00** postpaid — 3 FOR **$11.50** postpaid — 10 FOR **$35.00** postpaid

Send check or money order

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CHECK VARIETIES

- [ ] Lavender-Pink
- [ ] Deep Pink
- [ ] Blood-Red
- [ ] Rosy Red
- [ ] Bright Orange
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CHECK PRICES

- [ ] Each—$4.00
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IMPERIAL COLLECTION

- [ ] 6 VARIETIES—$22.00

ALL PRICES POSTPAID

STERN'S NURSERIES
Dept. G, Geneva, N. Y.

I want to be first in my neighborhood to have Stern's JAPANESE AZALEAS—guaranteed to bloom *this* MAY!

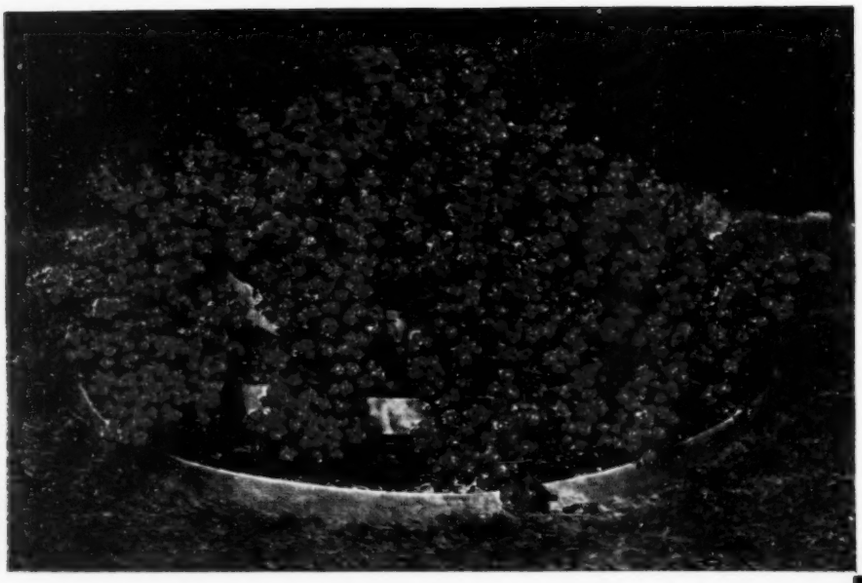
Reserve my selection for delivery at proper planting time in my section.

Enclosed is $_____

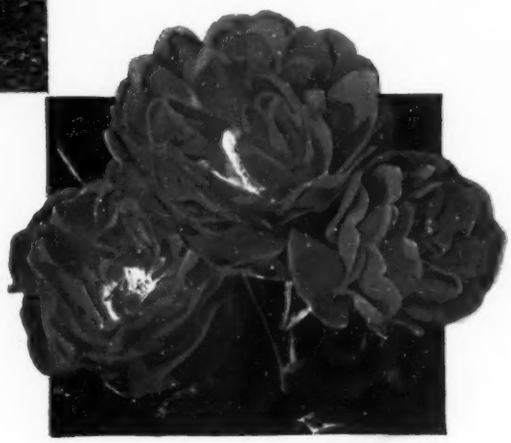
NAME _____

ADDRESS _____

TOWN _____ STATE _____



A Blazing GARDEN centerpiece



PYRAMID (TRADE MARK) polyantha rose garden

PAT. PEND.

EASY TO ERECT...

Merely place bottom aluminum coil on ground. Fill with rich soil. Trample. Repeat for remaining terraces. Plant and water well. This is the Junior size PYRAMID: 4½ feet in diameter. Three terraces and collar.

Thousands of blooms in 4½ feet of space!

Year After Year . . . Bloom from June to Freezing Weather . . .

A brilliant, cascading mass of beauty at a distance . . . a rose fancier's delight close-up. You've just the spot for a PYRAMID polyantha rose garden . . . Save it, enjoy Polyanthas this exciting new PYRAMID way.

POLYANTHA roses are brilliant, abundant, hardy... at maturity they grow to a height of 18 to 24 inches and will bloom profusely summer long 'til fall frost. In addition to the sparkling PYRAMID, Polyanthas are wonderful for *Beds, Borders, Edgings, Color Accent, Porch Boxes, Urns or Pails.*

Choice of 3 Colors . . . 2301—The complete 4½ foot PYRAMID polyantha rose garden consists of one complete Aluminum PYRAMID plus 15 sturdy, 2 year, No. 1 Polyantha bushes. Your choice of three splendid varieties described below. Be sure to specify variety wanted.

2151 Golden Salmon Rich, deep salmon. Glows like bright copper. Excellent foliage. One of the brightest and flashiest.

2152 Edith Cavell This is the dark red Polyantha. Rich, dark green foliage. Like all Polyanthas it is hardy and produces all summer.

2153 Orleans If you prefer a lovely pink shade then Orleans is your choice. Masses of rich pink blooms all summer long.

all for **$19.25** POSTPAID

***Prices When Ordered Separate From* PYRAMID**

Your choice of varieties—(Order By Number) $1.15 each, 3 for $3.15; 6 for $5.40; 12 for $9.50; 25 for $17.50; 50 for $33.00; 100 for $65.00. All Sent Postpaid.

KRIDER'S *famous Floribunda Roses...*

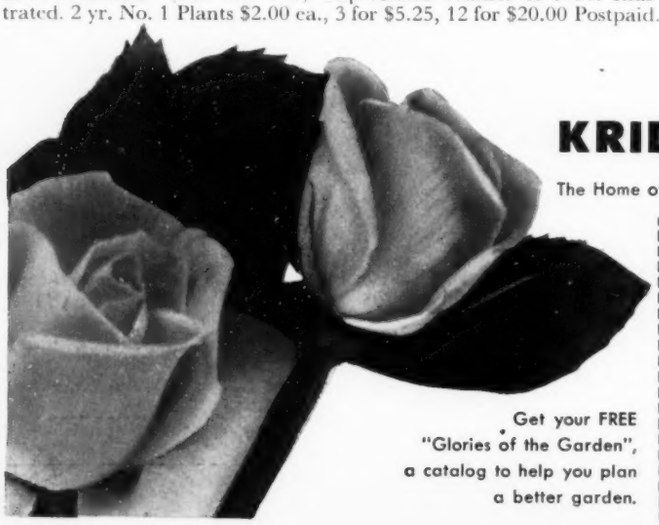
Nothing finer—hardy, prolific, beautiful. SPECIAL COLLECTION #2230. 4, one each of four described below. $6.25 Postpaid.

2190 VOGUE—(Pat. No. 926) 1952 AARS Winner. Cardinal Red. No. 1 plants $2.25 ea. 3 for $6.00 Postpaid.

2178 SUMMER SNOW—(Pat. No. 416) White masses of bloom. 2 yr. No. 1 plants $1.50 ea. 3 for $3.90; 12 for $15.00 Postpaid.

2176 GERANIUM RED—(Pat. No. 811) One of the most brilliant, intensely colored. 2 yr. No. 1 Plants $1.50 ea. 3 for $3.90, 12 for $15.00 Pp.

2154 FASHION—(Pat. No. 789) Top AARS Winner of 1950. Illustrated. 2 yr. No. 1 Plants $2.00 ea., 3 for $5.25, 12 for $20.00 Postpaid.



Get your FREE "Glories of the Garden", a catalog to help you plan a better garden.

KRIDER'S *Glories of the garden*

TRADE MARK

The Home of unusual plants: Rhododendrons, Azaleas, Purple Beach, Blood Leaf Maple

The KRIDER NURSERIES, Inc., 101 Middlebury St., Middlebury, Ind.

☐ Please send me your FREE Spring Catalog and Garden Guide.

☐ Please send me Postpaid No. 2301 Complete Pyramid with 15 _____ Polyantha roses.

Also, send Postpaid _____

_____

Name _____

Address _____

City _____ Zone _____ State _____

GARDENERS' GUIDE

PETERS SPECIAL 15-30-15. An inorganic powder containing minor elements, applied 1 lb. per 100 sq. ft. in solution; immediately soluble and fast-acting. Avail. in eastern U. S. from Robert B. Peters Co., 779 N. 7th St., Allentown, Pa.

PLANT MARVEL. An inorganic powder, 12-31-14, applied wet, 11 tbsp. or 5½ oz. per 100 sq. ft., immediately soluble and fast-acting; avail. in stores or by mail order from Plant Marvel Laboratories, 12050 Parnell Ave., Chicago 28, Ill.

PLANT SHOOT. Immediately soluble inorganic material. 20-20-20. Avail. from nurseries. Nott Mfg. Co., Mt. Vernon, N. Y.

QUICK-LIFE. An inorganic product in granular form. 14-30-16. Applied in water. Fast acting. Avail. in New England and by mail from Joseph Breck & Sons, 401 Summer St., Boston 10, Mass.

RA-PID-GRO. An organic granular powder, 23-21-17 plus minor and trace elements, also vitamins and hormones, 1/10 lb. applied in solution per 100 sq. ft., immediately soluble and fast-acting; can be used for foliage feeding. Avail. in stores in sizes from 2 oz. to 50 lbs. Ra-Pid-Gro Corp., Dansville, N. Y.

SPROUT (formerly known as Gro). A liquid, 10-20-10 plus 8 minor elements and the rooting hormone alpha naphthalene acetic acid, 4 oz. per 100 sq. ft. Also used as starter solution and for foliage feeding. Fast-acting. Avail. in stores N. Y. to Chicago, Minn. to Colo. or by mail order L. S. Root Lab., 10-49 45th Road, L. I. C., N. Y.

TAKE-HOLD PLUS. An inorganic granular compound, 10-52-17 plus rooting hormone. Applied in solution as a transplant starter and general plant food. Immediately soluble and very fast-acting. 2 oz. per 100 sq. ft. Avail. in Midwest or by mail order from Science Products Co., 1230 E. 63rd St., Chicago 37, Ill.

VIMIX. Completely water soluble. 16-16-16 plus vitamins. Avail. by mail from Vimix Chemicals, Lewes, Del.

VIVO. A soluble powder containing "basic fertilizing agents" (formula not given), plus trace elements, root hormones, and vitamins. For periodic application to soil or for water culture, but *not* for foliage feeding. Adco Works, Carlisle, Pa.

WUND-O-BEST. A soluble fertilizer first marketed 30 yr. ago. 16-20-16. For either root or foliage feeding. In 1, 5, and 10-lb. bags with measuring spoon in each; also 25 and 50-lb. bags. Goulard & Olena, Skillman, N. J.

Special-Purpose Fertilizers

GREEN - GRO SPECIAL - PURPOSE FERTILIZERS. Home Garden 5-8-7 for vegetables and flowers; 6-7-4 mixture for lawns, shrubs, and trees; 3-Way-3 Lawn Dressing 6-10-4 for lawns only; Acid 8-5-5 for acid-loving plants. Pulverized combination fertilizers for dry application. Available in Conn. and Mass. only. Apothecaries Hall Co., Waterbury, Conn.

Better SOIL—Better Garden

If the topsoil has been removed, the only way to make the remaining subsoil fertile is to manure it heavily and plant green manures and plow them in for several years. It may take three or four years to make such a subsoil productive.

Apples and pears are the only fruit trees that grow well in sod. The others should be cultivated.

For Lawns

AGRICO FOR LAWNS. A combination granular material for lawns, trees and shrubs, 6-10-4; applied dry 3 lb. (3 pts.) per 100 sq. ft. Avail. from Mich. eastward. American Agric. Chemical Co., 50 Church St., New York 7, N. Y.

EMERALDGREEN. An inorganic powder, 10-8-6, for lawns and gardens, applied dry ½ lb. per 100 sq. ft., fast-acting. Avail. only in Midwest. Wilson & Co., 4100 S. Ashland Av., Chicago 9, Ill.

FABULAWN. A fast-acting water-soluble powder for lawns, 23-20-17. 1 tbsp. in 1 gal. water covers approximately 320 sq. ft., applied with sprinkling can or hose proportioner. Canisters of 1 and 5 lb. available in dept. and hardware stores. Henry A. Dreer, Inc., 105 N. Fifth St., Philadelphia 6, Pa.

HYGANIC. 10-6-4, for lawns, trees, shrubs. In 25 and 100-lb. bags. Goulard & Olena, Skillman, N. J.

FEEDZ N' WEEDZ. A high-organic 6-10-4 fertilizer plus 2,4-D for killing broad-leaved weeds in lawns. In 10, 25, and 100-lb. bags. Goulard & Olean, Skillman, N. J.

KAPCO NO - PEST PLANTFOOD, TURFOOD, AND NO-WEED TURFOOD 6-10-4. Three combination products especially for lawn use, to control pests and weeds as indicated. Applied in powder form 2 lb. per 100 sq. ft. Avail. in stores or by mail from Kelly Agric. Products Co., 603 Walnut St., McKeesport, Pa.

LAWN MARVEL. An inorganic powder, 18-16-6, for lawns, trees, shrubs and evergreens, applied wet, 1/10 lb. per 100 sq. ft. of lawn every 2 wks.; may be used with hose applicator. Avail. in stores or by mail from Plant Marvel Laboratories, 12050 Parnell Ave., Chicago 28, Ill.

HUBBARD GOLF COURSE FERTILIZER. A high-nitrogen fertilizer with 50% of its nitrogen derived from organic sources. 2 lb. per 100 sq. ft. of lawn. Rogers & Hubbard Co., Portland, Conn.

HUBBARD WEED-KIL LAWN FOOD. A dry mixture of specially formulated fertilizer plus 2,4-D. Rogers & Hubbard Co., Portland, Conn.

LAWNO. A combination powder, 6-8-6 plus minor elements, especially for lawns. Applied dry 3 lb. per 100 sq. ft. Avail. in N. C. & Va. or by mail from Farmers Cotton Oil Co., P. O. Box 980, Wilson, N. C.

TURF BUILDER. Formula prepared especially for lawns. Mixtures of fertilizer and weed killers also available. O. M. Scott & Son Co., Marysville, Ohio.

For Acid Soil Plants

AGRICO FOR BROADLEAF EVERGREENS. A combination granular material, 6-10-4 with acidifying agents added. Applied dry up to 3 lb. per 100 sq. ft. Avail. from Mich. eastward. American Agric. Chemical Co., 50 Church St., New York 7, N. Y.

F & B BROADLEAF HIGH ORGANIC. 6-10-4 plus minor elements and aluminum sulfate; ½ of nitrogen organic. Applied dry. Avail. in retail stores. Faesy & Besthoff, 325 Spring St., New York 13, N. Y.

FRAIM'S AZALEA-CAMELLIA PLANT FOOD. Formula not stated. Avail. in stores. Fraim Mfg. Co., Granby at 39th St., Norfolk, Va.

GRO-FAST ACID FERTILIZER. A combination fertilizer, 4-10-4 plus manganese and iron, plus 60% organic nitrogen. Part fast, part slow-acting. Rate of application depends on size of plant. Avail. in New Eng., N. Y. and N. J. or by mail from: Rogers & Hubbard Co., Box 233, Portland, Conn.

HODGSON'S RED STAR AZALEA AND CAMELLIA FOOD. Three formulas, organic, inorganic, and combination, 4-8-6, 6-8-6, and 4-12-4, in granular form, applied dry, immediately soluble on watering. Avail. in Southeast or by mail from Empire State Chem. Co. Div. of Hodgson's, Inc., Athens, Ga.

make gardens thrive

APPLY VITAL TRACE ELEMENTS IN NEW, SLOW-SOLUBLE FORM

Now is the time to make sure your garden soil has essential trace elements available *all season* for full, healthy plant growth. Ferro's new FTE* (Fritted Trace Elements) gives you this assurance by *slow-solubility*. One application remains in the soil for the full growing season, immune to leaching.

Trace element deficiencies may not be readily apparent, but they appear in the form of sparse foliage, chlorosis, or discoloration. Buds and blooms may be small and immature.

Commercial growers know trace elements can correct these deficiencies. FTE contains iron, manganese, zinc, boron, copper and molybdenum . . . the trace elements commercial growers use to promote healthy growth and full yields. FTE also has the added quality of *slow-solubility* which makes one application last all season. FTE is also nontoxic.

HOW FTE IS APPLIED

FTE is now available for direct soil application, in a 1-lb. canister, or in 5-lb. and 50-lb. bags, through *E. I. duPont deNemours Co., Inc., garden product distributors*. It should be worked into the soil in the plant root area. Normal application is 1 lb. per 400 sq. ft.

FTE is also available as an additive in commercial fertilizers. Look for "FTE" on labels or bags. For further information write Ferro Corporation, Cleveland 5, Ohio. In Canada write Ferro Enamels (Canada) Ltd., Oakville, Ontario. Write for Free Bulletin.

FERRO

F·T·E

(Fritted Trace Elements)

*Patent applied for

Trademark

FERTILEZE guarantees you the finest garden or lawn you have ever grown!

Complete major element plus complete trace mineral plant food supplies ALL 14 nutrients

This year—without guesswork and drudgery—enjoy the most beautiful flowers, the tastiest vegetables, the most luxuriant lawn you have ever grown!

You can now *be sure* of these long-sought results with Malabar-Sunnyhill FERTILEZE, the new plant food that supplies *in adequate, pre-tested quantities* the three major elements and *all eleven vital trace minerals* known to be essential to the health of growing things.

HEALTHIER PLANTS GUARANTEED

Years of experimentation have at last yielded in FERTILEZE the first successful combination of all 14 health-giving elements in a compatible, *instantly* water-soluble form. FERTILEZE has been given exhaustive field and hot-house tests at Battelle Institute, at Malabar and Sunnyhill experimental farms, by Scientific Associates, and by leading agronomists in independent studies.

These tests prove conclusively that FERTILEZE *will produce healthy plants in the most deficient soils!*

Check Those Trace Minerals!

In addition to its abundant 20–10–20 major-element content, FERTILEZE alone contains all 11 vital trace minerals in adequate quantities. Here is a comparison with the trace element content of two of today's top-selling fertilizers.

ELEMENT	Content in FERTILEZE	Compared with BRAND "A"	Compared with BRAND "B"
Magnesium	2.12%	5 times	100 times
Manganese	0.50%	20 times	500 times
Boron	0.05%	5 times	3 times
Copper	0.07%	14 times	140 times
Iron	0.20%	equal amount	200 times
Zinc	0.10%	10 times	10 times
Molybdenum	0.01%	10 times	10 times
Cobalt	0.02%	40 times	40 times
Iodine	0.02%	100 times	80 times

In addition, FERTILEZE contains 9.55% Sulphur, 2.07% Calcium.

Complete Feeding Pays Off!

Test photo at Battelle Institute showing FERTILEZE-fed plant (left) and plant fed with a top-selling fertilizer (right), both grown in same element-deficient soil. Test ended when competing fertilizer failed to sustain plant.

EASY TO APPLY

You apply FERTILEZE to lawns, plants and trees by the easiest, most economical method yet conceived. For moderate sized lawns or gardens, you simply attach the FERTILEZE Hand Spray to your garden hose and fill it with dry FERTILEZE. As you water the plants, the Hand Spray supplies the fertilizer *in solution* while your water pressure does the work!

For larger lawns and gardens the FERTILEZE Flow Mixer is attached at the water source and you use a regular nozzle or lawn sprinkler for watering. Again there is no messy mixing. FERTILEZE is automatically dissolved and supplied to both foliage and roots in safe, effective amounts. Trees and shrubs are fed with the addition of the self-sinking FERTILEZE Root Feeder. Just insert its pressurized feeding tube into the ground (a child can push it through hard shales) and let your water supply do the rest!

The astonishing success of FERTILEZE is based on the sound concept of *complete* feeding in *small* amounts at *regular* intervals. All essential elements are made available to foliage and roots when and as needed . . . there is no waste, no burning, no delayed-action guessing!

MAKE YOUR OWN 30-DAY TEST!

As a garden enthusiast you will want to *try* FERTILEZE as soon as possible. We invite you to make this test *at our risk.* Order the FERTILEZE feeding unit suitable to your garden area, along with a substantial supply of FERTILEZE, and try it for 30 days. If you are not completely satisfied, after four weekly applications, that FERTILEZE is exactly as we claim, return the feeding unit and remaining FERTILEZE.

But if you are as enthusiastic about FERTILEZE as we know you will be, send your remittance as shown below. Pay nothing until you have tested the FERTILEZE method on *your own soil!*

WHAT LOUIS BROMFIELD SAYS ABOUT FERTILEZE

Dear Friend:

I am profoundly impressed by the results obtained from FERTILEZE at Malabar Farm. You will be as thrilled with this astonishing new plant food as I am.

During the many years I have been active in agriculture I have become increasingly aware of the need for a plant food which would provide in sufficient amounts all the 14 elements known to be essential to the health of growing things. You will be delighted to learn this critical need has now been met by FERTILEZE . . . a truly balanced formula which contains *all* these 14 major and trace minerals in a convenient, water-soluble form. You will be pleased, too, with the new easy methods for regular feeding of FERTILEZE.

I am happy to share my discovery of FERTILEZE with you and know you will experience the same remarkable success with it that I have.

LOUIS BROMFIELD
(Famous agriculturalist, lecturer and author)

TRY FERTILEZE NOW AT *OUR* RISK. USE FIRST . . . PAY LATER. GET SUPERIOR RESULTS WITHIN 30 DAYS OR PAY US NOTHING!

HAND SPRAY

Precision-made solid aluminum head with 3-way push-button control for half, full feeding speed and plain water spray. Pint-size container holds enough FERTILEZE to cover 1,500 sq. ft. in 5 min. at normal water pressure. *With twelve 12-oz. handy "poly" bags of FERTILEZE . . .*

Patent Pending **$9.95** (plus postage)

FLOW MIXER
(with FERTILEZE)

Consists of precision molded aluminum metering head with transparent cap and heavy-duty corrosion-resistant tank. Unit remains near water tap; fertilizer is applied with regular hose nozzle or lawn sprinkler. *With twelve 12-oz. "poly" bags of FERTILEZE . . .*

Patent Pending **$22.95** (plus postage)

ROOT FEEDER & FLOW MIXER
(with FERTILEZE)

For trees and shrubs. Has 30" steel feeding tube with solid aluminum visual-flow handle and hose connection. *With Flow Mixer and twelve 12-oz. "poly" bags of FERTILEZE . . .*

Patent Pending **$28.95** (plus postage)

SAVE PARCEL POST COST!

If you prefer, enclose your check with order and we'll pay mailing cost. Your money refunded under terms of above guarantee if not satisfied.

NUTRITIONAL CONCENTRATES, INC. (Desk F)
3090 West Liberty Avenue, Pittsburgh 16, Pa.

Dealer inquiries invited!

Gentlemen:
Please send me the following:
☐ Hand Spray, 12—12-oz. bags of FERTILEZE.....($ 9.95)
☐ Flow Mixer, 12—12-oz. bags of FERTILEZE.....(22.95)
☐ Root Feeder, Flow Mixer, 12—12-oz. bags of FERTILEZE..(28.95)

If I am completely satisfied after four weekly applications of FERTILEZE I agree to pay the cost shown above plus postage. If not satisfied, I shall return the feeding unit and remaining FERTILEZE.

Name _____ Street Address _____
(Please Print)
City _____ Zone _____ State _____

GARDENERS' GUIDE

HOLLY-TONE. A finely ground, chiefly organic compound, 4-6-4 plus minor elements. Applied dry, part immediately soluble upon watering, the balance slowly avail. to plants. Avail. in 5, 10, 25, 50 and 100 lb. bags in N. J., N. Y., Del., Pa. & Conn. or by mail from Espoma Co., Millville, N. J.

OLD PLANTATION. 4-8-8 plus minor elements, esp. for camellias and azaleas. Applied dry, 3 lb. per 100 sq. ft. Part fast and part slow-acting. Avail. in N. C. & Va. or by mail from Farmers Cotton Oil Co., P. O. Box 980, Wilson, N. C.

R.A.C. A combination powder, 4-6-8, esp. for acid tolerant and shade-loving plants. Does not contain aluminum sulfate, is not a soil correction agent, but is specifically a fertilizer. Avail. in west. states or by mail from Pacific Guano Co., 1832 Second St., Berkeley, Cal.

RELIANCE AZALEA AND CAMELLIA SPECIAL. "Designed for azaleas, camellias, magnolias, gardenias, hollies, rhododendrons and other acid soil plants." Reliance Fertilizer Co., Savannah, Ga.

RHODO-AZALEA-CAMELLIA FOOD. 3-20-3, a high-acid formula. In 2, 5, 10, 25, and 100-lb. bags. Goulard & Olena, Skillman, N. J.

RHO-ZA-GROW. A plant food and soil conditioner for acid-soil plants; formula not stated. Applied dry 4 lbs. per 100 sq. ft. Avail. in 10, 25, 50 & 100-lb. bags, chiefly in seed stores in Va. or by mail from Waynesboro Nurseries, Waynesboro, Va.

VIGORO AZALEA-CAMELLIA SPECIAL. "A complete plant food for acid-loving plants"—formula not stated; not avail. in all states. Swift & Co., Plant Food Div., Chicago 9, Ill.

For Roses

AGRICO ROSE FOOD. A combination granular material 50% organic, 5-9-6. Applied dry, approx. 2-3 lb. per 100 sq. ft. Part fast, part slow acting. Avail. from Mich. eastward. American Agric. Chemical Co., 50 Church St., New York 7, N. Y.

D & P ROSE FOOD. A combination fert., 5-10-5, composed of mixed granules, powder and fibrous material. Applied dry, 10 lb. per 100 sq. ft.; part fast, part slow-acting. Avail in eastern states. Doggett-Pfeil Co., Springfield, N. J.

F & B ROSE FOOD, 8-10-4; 50% of nitrogen organic. Applied dry. Avail. in retail stores. Faesy & Besthoff, 325 Spring St., New York 13, N. Y.

G & O ROSE FOOD. Organic. Contains dried blood, meat tankage, bone, fish scrap, vegetable meal, trace elements, neutro-phosphorus, and nitrogen. In 1, 5, 10, 25, and 100-lb. bags. Goulard & Olena, Skillman, N. J.

FRAIM'S ORGANIC ROSE FOOD. Formula not stated. Avail. in stores. Fraim Mfg. Co., Granby at 39th St., Norfolk, Va.

GRO-FAST ROSE FOOD. A combination fertilizer, 7-10-5, neutral. 60% of nitrogen organic, phosphorus from bone, potassium from sulfate potash. Avail. in New Eng., N. Y. and N. J. or by mail. Rogers & Hubbard Co., Box 233, Portland, Conn.

GROW POWER ROSE FOOD. A moist organic material with added minerals, hormones, vitamins, and nutrients of special value to rose plants, activated with soil microorganisms. Applied in water or as is, 2-4 lb. per 100 sq. ft. Avail. chiefly through private-label packagers or by mail from Benson-Maclean, Bridgeton, Ind.

STIM-U-PLANT ROSE FOOD. A combination fertilizer especially for roses, 5-10-5, in granular form, applied dry. Stim-U-Plant Laboratory Co., 791 S. Lazelle St., Columbus 16, Ohio.

TRI-OGEN ROSE FOOD. A combination powder, 5-10-5 plus minor elements, hormones, and vitamins. Applied dry to individual plants. Avail. in stores. Rose Mfg. Co., Beacon, N. Y.

For Trees

DAVEY TREE FOOD. A combination powder, 12-4-4 plus iron, zinc, manganese, magnesium, copper, boron and sulfur. Applied dry, 2 lb. per 100 sq. ft. Partially soluble upon watering. Contains both rapidly and slowly available forms of nitrogen. Avail. only by mail from: Davey Tree Expert Co., Dept. F, Kent, Ohio.

G & O TREE AND SHRUB FOOD. 9-7-3. Recommended for post-hole and trench methods of feeding. In 5, 10, 25, and 100-lb. bags. Goulard & Olena, Skillman, N. J.

For Other Special Plants

DAHLIA-LILY-BULB FOOD. 5-6-15. Extra-high in potash. In 2, 5, 10, 25, and 100-lb. bags. Goulard & Olena, Skillman, N. J.

PRAEFACTA. A combination fertilizer in granular or powder form, esp. for water lilies. 7.8-11.4-4.8 plus other selected chemicals. Medium fast in action. Avail. in stores or by mail from William Tricker, Inc., Independence, Ohio, or Saddle River, N. J.

TOMATO FOOD. 3-12-13, for supplementary feedings in July and Aug. In 2, 5, 10, 25, 100-lb. bags. Goulard & Olena, Skillman, N. J.

For Potted Plants

ALLEN'S INSTANT COW MANURE. An organic powder containing added vitamin B12. Formula not stated. Applied either wet or dry, packaged especially for house plants. Avail. in stores. Merz-Mihm, Whitehouse, N. J., distrib. Allen Co., Pittstown, N. Y. mfcr.

BIO FLUID. Special "B" type for potted plants. A concentrated organic liquid containing alginate from seaweed, colloidal humus from decomposed peat, and a balanced plant nutrient solution including trace elements. Sold in 8 and 16-oz. bottles, 1-qt., ½-gal., and 1-gal. cans, and 5-gal. drum in England only. By mail from Finch & Knight, Ltd., Bracknell, Berkshire, England.

BLACK MAGIC BLOSSOM BOOSTER. A combination fast-acting liquid, 2-8-2, for house plants. Avail. in stores. Parks-Barnes, Inc., 530 Sixth St., Hermosa Beach, Calif.

BLACK MAGIC LIQUID FERTILIZER. Combination 2-3-2 for house plants, fast-acting. Nationally avail. Parks-Barnes, Inc., 530 Sixth St., Hermosa Beach, Calif.

BLACK MAGIC PLANTER FOOD. An organic fert., 2-3-2 in tablet form for house plants, relatively slow-acting. Avail. in stores. Parks-Barnes Inc., 530 Sixth St., Hermosa Beach, Calif.

FERTO-POTS. Kiln-dried rotted cow manure in shape of pots, to be used as lining for clay pots in growing house plants or as starter pots for seedlings to be set outdoors. 2, 2½ and 3-in. sizes. Fargo's, Frenchtown, N. J.

GAVIOTA ORCHID FERTILIZER. An inorganic powder, 10-12-10 plus 7 minor elements and 0.0005% vit. B1. Designed for all orchid culture including nutrient for flask germination, also potted house plants. 1 tsp. in 1 gal. water; immediately soluble, fast-acting, will not burn if applied by submerging pot or irrigating. Avail. nationally including Hawaii or by mail from Pacific Guano Co., 1832 Second St., Berkeley, Cal.

MECO. See description under *Compost Activators.* Mac Engineering Co., Lewisburg, Pa.

POW-R-CAPS. Soluble fertilizer in individual capsules, each for making 1 qt. of solution. 36 in a pkg. Henry A. Dreer, Inc., Philadelphia 6, Pa.

ROIGINA AFRICAN VIOLET PLANT FOOD. A combination water soluble capsule, 11-4-8. Partially soluble immediately. Avail. in garden supply stores. Roigina Products, Box 345, Lincoln, Neb.

Dr. Liberty Hyde Bailey, Dean of American Horticulturists

C. HADLEY SMITH

• Dr. Liberty Hyde Bailey, *left,* dean of American horticulturists who will celebrate his ninety-fifth birthday this spring, is shown receiving visitors at his Ithaca, New York, home during the meetings of the American Institute of Biological Sciences held at Cornell University last September. Dr. Bailey's attentive visitors are Dr. Benjamin Duggar, *center,* discoverer of aureomycin, and Dr. Charles Thom, *right,* President of the Mycological Society of America for 1953.

FERALON

NEW PLANT FOOD and SOIL CONDITIONER

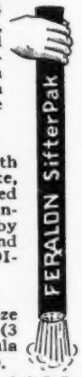
WORKS WONDERS with all HOUSE PLANTS!

Ideal for African Violets

New scientific discovery promotes glorious giant blooms that last longer. Improves coloration of flowers. Makes foliage more luxuriant, raises resistance to disease. Flocculates soil and eliminates frequent re-potting. Plastic squeeze injector reaches into soil, keeps powder off plant. Slips, seedlings, bulbs, all botanical life thrives as never before. Be first in your area to prove amazing results.

INVIGORATES GARDENS and LAWNS

Get Feralon Outdoor Formula in big 4 pound Sifter Pak. Perfect for flower beds, vegetable gardens, fruit trees, lawns and shrubs. Recommended by leading horticulturists. Used by America's premium tobacco growers. The secret of success in Nurseries and on golf greens. First time offered to public.



CONTAINS ALL VITAL NUTRIENTS

Powdered hi-protein soy meal is fortified with Organic Nitrogen, Potassium Phosphate, Vitamin B 1, Antibiotics, new F T E (Fritted Tracer Elements) and other beneficial ingredients. Feralon avoids harmful jolt by releasing food at controlled rate. Clean and odorless. WILL NOT BURN—NO POISONS—so safe you could eat it!

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FERALON DIVISION, OSWEGO 3, NEW YORK
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BUG-GUN

Attach to garden hose . . .
Water pressure does the work

Kill bugs or apply weed killer as easily as you sprinkle. Sprays any material you mix with water to apply—won't clog. Easy to use . . . no moving parts. Jar holds enough to make 1½ gal. of properly mixed spray. Cleans in 30 seconds. At your dealer's or order from:

Sprays INSECTICIDES FUNGICIDES & WEED KILLERS Liquid or Powder

The Bradson Company
No. Hollywood, Calif.

$1.95

Lever Spray

The Modern AUTOMATIC Hose Nozzle

for
- GARDENS
- LAWN
- WALKS
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SQUEEZE — It's on!
RELEASE — It's off!

Fine mist, spray, or heavy stream at slight hand pressure. May be locked in position desired. Saves water, time. Chrome plated. Satisfaction guaranteed. $1.69 each.

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GARDENERS'

ROIGINA IVY - PHILODENDRON PLANT FOOD. A combination water-soluble capsule, 8-10-8, esp. for indoor foliage plants. Partially soluble immediately. Avail. in garden supply stores nationally. Roigina Products, Box 345, Lincoln, Neb.

SPOONIT. A combination powder for African violets and other house plants, 18-18-14. Applied in solution at rate of ½ lb. per 100 sq. ft., immediately soluble. Mildly acid in reaction. Avail. only by mail order from Plantsmiths, Box 818, Palo Alto, Cal.

STIM-U-PLANT PLANT TABLETS. Inorganic water-soluble tablets 11-12-15; to be placed in soil or dissolved—1 tablet in 1 qt. water. Fast-acting. Avail. in stores. Stimuplant Lab. Co., 791 S. Lazelle St., Columbus 16, Ohio.

STIM-U-PLANT FOR AFRICAN VIOLETS. An inorganic powder, 5-8-7 plus vit. B1 and plant hormones for pot use. Applied wet, immediately soluble. Avail. in stores. Stimuplant Lab., 791 S. Lazelle St., Columbus 16, O.

VIGORO TABLETS. All essential elements in form of soluble tablet which is pushed into soil. 48 tablets in pkg. Swift & Co., Chicago 9, Ill.

VIOL-OGEN PLANT FOOD. A combination powder, 13-26-13 plus minor elements, hormones, and vitamins; applied in solution to African violets; immediately soluble. Avail. in stores. Rose Mfg. Co., Beacon, N. Y.

Special Soils for Potted Plants

GENERAL POTTING SOIL, also **AFRICAN VIOLET SOIL,** scientifically mixed, heat-pasteurized, treated with chlordane for grub control, heat-sealed in 1½ and 4-lb. polyethylene bags. Sold in chain stores in northeastern U. S. *Humus packaged similarly.* Rose Acre Soils, Inc. Salisbury Mills, N. Y.

GROW POWER. An enriched potting soil containing humus, vermiculite stone lime, marl, and peat, to be used as is or mixed 50-50 with other soil or sand. Avail. in pkg. of 3, 50, 175, and 250 lb., chiefly in Midwest and South or by mail from Gardener's Cupboard, P. O. Box 623, Chicago 90, Ill.; Lose Bros., 300 E. Jefferson, Louisville, Ky.; J. Chas. McCullough Seed Co., Cincinnati, Ohio; Benson-Maclean, Bridgeton, Ind.

M-16 SUPER-HUMUS. See description under *Soil Conditioners, Natural.*

MICHIGAN PEAT. Specially prepared for the potting of African violets and other house plants. A new product in half-peck bags. Michigan Peat Co., 267 Fifth Ave., New York 16, N. Y.

NEW ERA PEAT HUMUS. Packaged especially for potted plants. See under *Soil Conditioners.* Clinton Nurseries, Clinton, Conn.

SOIL ENRICHER. Organic matter to add to sifted potting soil. 1 part in 5. In 5, 10, and 25-lb. bags. Goulard & Olena, Skillman, N. J.

OTHER MATERIALS WITH SPECIAL FERTILIZING VALUE

Phosphate and Superphosphate

ARROW BRAND ROCK PHOSPHATE. 30% phosphoric acid plus many trace minerals, applied as powder, 10 lb. per 100 sq. ft., slow-acting. Avail. in Ohio from Ohio Rock Phosphate Sales, Route 6, Springfield, O. Also from Robin Jones Phosphate Co., P. O. Box 1021, Nashville, Tenn.

COLLOIDAL CLAY PHOSPHATE. A very fine, soft material containing 4.55% available phosphoric acid, out of a total of 18% acc. to one analysis, and approx. 25% of lime. Increases water-holding capacity of soil. Avail. in 80-lb. bags from the soil service companies of Joe Francis, Terre Haute, Ind.; Jess M. Fanning, Monroe, Mich.; Hespen, Fremont, Neb.; Hoover, Gilman, Ill.; Schroder, Cherryvale, Kan., and others.

RUHM'S SUPERFINE ROCK PHOSPHATE. 30% P_2O_5, 85% thru 300 mesh screen. Applied dry, 10 lb. per 100 sq. ft., av.; slow-acting. Avail. in 80-lb. bags from Fred A. Veith, 3505 Mozart Ave., Cincinnatti, 11, Ohio. Soilservice, Townsend, Mass.; and other dealers.

ROCK PHOSPHATE. Finely pulverized. Avail. in 100-lb. bags from Benson-Maclean, Bridgeton, Ind.

SUPERPHOSPHATE. 20%. May be added to general fertilizer to improve color of leaves and flowers. In 5, 10, 25-lb. bags. Goulard & Olena, Skillman, N. J.

Bone Meal

BLOOD TANKAGE & BONEMEAL. Equal parts. 5¼% nitrogen, 6% phosphoric acid. 4 lb. per 100 sq. ft. of lawn at seeding time in Sept. for slow-acting, long-lasting results. In 25 and 100-lb. bags. Goulard & Olena, Skillman, N. J.

F & B PURE BONE MEAL. An organic powder, nitrogen 2.47%, total phosphoric acid 23%; applied dry, slow-acting. Avail. in retail stores. Faesy & Besthoff, 325 Spring St., New York 13, N. Y.

G & O BONEMEAL. Steamed and ground. Apply 5 lb. to 100 sq. ft. of lawn. In 2, 5, 10, 25, and 100-lb. bags. Goulard & Olena, Skillman, N. J.

G & O PURE RAW BONE. Contains twice as much avail. nitrogen as steamed bonemeal and lasts four times as long. In 10, 25, 100-lb. bags. Goulard & Olena, Skillman, N. J.

GRO-FAST BONE MEAL. A fertilizer material made from finely-ground animal bone. 2% nitrogen, 23% total phosphoric acid. Avail. in New Eng., N. Y. & N. J. or by mail. Rogers & Hubbard Co., Box 233, Portland, Conn.

RAW BONE MEAL. Avail. in Conn. and Mass. from Apothecaries Hall Co., Waterbury, Conn.

Special Manures

SHEEP MANURE. Avail. in Conn. and Mass. from Apothecaries Hall Co., Waterbury, Conn.

FF COMPOST. A compacted and shredded manure exclusively from mink; locally avail. as top dressing for lawn; 2 bushels per 100 sq. ft., or as general garden fertilizer. Donat Fur Farm, Wallingford, Conn.

Trace Elements

ES-MIN-EL. Essential mineral elements: boron, copper, manganese, zinc and magnesium. Tennessee Corp., 1619 Grant Bldg., Atlanta, Ga.

FTE. Fritted trace elements. Glass frit containing manganese, iron, zinc, copper, boron and molybdenum. Ferro Corp., Cleveland 5, Ohio.

Other Materials

MARTIN'S GRANITE DUST. 3% potash. An inorganic rock powder applied dry 50 lbs. per 100 sq. ft., slow-acting. Avail. locally from Keystone Granite Co., Zionsville, Pa.

Better SOIL—Better Garden

A heavy cover of wild grasses and weeds on an abandoned plot usually is a sign of good soil, but an application of manure and commercial fertilizer will usually be beneficial because those plants growing wild do not necessarily need the same type of nutrients as cultivated plants.

GUIDE

MURIATE OF POTASH. Contains 60% avail. potash to stimulate root growth. In 5, 10, 25-lb. bags. Goulard & Olena, Skillman, N. J.

NITRATE OF SODA. 16%. Starts to work improving leafy vegetables in about 10 da. In 5, 10, 25-lb. bags. Goulard & Olena, Skillman, N. J.

SULPHATE OF AMMONIA. Contains 20% avail. nitrogen. Slower-acting, longer-lasting than nitrate of soda. Can be dissolved in water for liquid application. In 5, 10, 25-lb. bags. Goulard & Olena, Skillman, N. J.

WATERING DEVICES

Nozzles

ALLENCO JUSTRITE NOZZLE; JEWEL; STUBLY. All of cast bronze; rotation adjustment; guaranteed. W. D. Allen Mfg. Co., 566 West Lake St., Chicago, Ill.

CHAMPION. Brass; rotation adjustment. Durst Mfg. Co., Inc., 409 Lafayette St., New York, N. Y.

COLORADO SPRINKLER. See description under *Sprinklers.*

GOLD LABEL; DIAMOND; BRASS KING. Bronze, brass and chrome plated; rotation adjustment. H. B. Sherman Mfg. Co., Battle Creek, Mich.

GREEN SPOT. Standard and heavy duty models; brass or chrome plated; rotation adjustment; non-rising control sleeve. Scovill Mfg. Co., Waterbury, Conn.

KEYSTONE NOZZLE. Brass, rotation adjustment. Keystone Brass & Rubber Co., Broad St., & Lehigh Av., Philadelphia, Pa.

LEVER SPRAY. Chrome plated and brass; automatic shut-off. Nozzle operates by compressing lever release. Knurled nut can be adjusted to lock water stream in any position desired. Several types of spray, mist to full stream. Kay Products Industry, 1389 Sloane Ave., Lakewood, Ohio.

SUNBEAM RAIN KING. Brass, chrome plated; rotation adjustment. Sunbeam Corp., 5600 Roosevelt Rd., Chicago, Ill.

WHITESHOWERS. See description under *Sprinklers.*

Sprinklers

ADAMS. Stationary; iron, circular spray; faucet control. Adams Co., Dubuque, Iowa.

ALLEN SPRINKLERS. More than twelve models, stationary or revolving; covering 20 to 70 ft. in circular or odd-shaped areas. There are 1, 2 or 3-arm models; those with nozzle type or other sprinklers, multiples, 0-shaped, V-shaped, heart-shaped, spike, ring, half ring, variations of these and root irrigators. W. D. Allen Mfg. Co., 566 West Lake St., Chicago. Ill.

ARMSTRONG. Rotary and stationary types in brass; circular areas 50 to 75 ft.; faucet control. Armstrong Products Corp., Huntington, W. Va.

AVON SPRINKLER. Oscillating, 1500 sq. ft. area or more. Mechanism encased in separate chamber and packed in water repellent grease. Housing construction of aluminum, die cast; pressed aluminum runners, other parts, bronze & stainless steel. Adjustable to limited areas. Avon Mfg. Co., 383 Shrewsbury St., Worcester, Mass.

BROOKS SPRINKLERS. Rotary or stationary; circular area; 36 to 50 ft. (rotary), 14 to 25 ft. (stationary); 1½ lb. Has built-in timer and Brooks vacuum breaker-back syphonage preventer. 1 yr. guarantee. John A. Brooks, Inc., 20122 Livernois, Detroit, Mich.

BROWNING SPRINKLERS. Rotary or stationary; brass and aluminum; circular or square area 5 to 115 ft.; ½-2½ lb. Brown Mfg. Co., 8120 Center St., La Mesa, Calif.

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Feed Your Lawn RIGHT —use AGRICO

The nation's finest lawns are fed with AGRICO FOR LAWNS, developed by one of the world's leading fertilizer producers. Feed your lawn the AGRICO way! Here's the just-right combination—both organic* and inorganic—to make lovely, dark-green, deeper-rooted turf. One of four special-purpose Agrico Plant Foods. Also use Agrico for Flowers & Vegetables—Roses—Broadleaf Evergreens. At Garden Supply Dealers.

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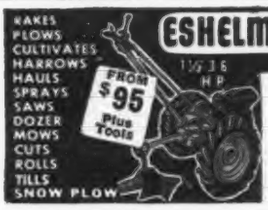
This is the same plant vitamin product so popular for so many years—that gave the amazing results in California and elsewhere you read about. Use regularly for house plants. Excellent in transplanting. Handy tablets—each makes 1 to 5 gallons watering solution. SPECIAL OFFER: One 100-tab. bottle for only 49¢ postpaid.
BENSON-MACLEAN VITAMINS Bridgeton 6, Ind.



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Also Power Reverse. Women can operate it. Free Catalog. Write nearest branch:
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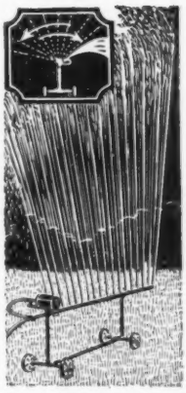
for maintaining the "MOST BEAUTIFUL LAWN IN YOUR TOWN"



Attaches to ordinary garden hose. Water falls like rain over 1800 square foot area. No overlapping. No dry spots. Oscillator tube fully adjustable for coverage up to, but not on sidewalks, house; or for restricted areas. Hydraulic motor operates positively on pressures as low as 20 lbs. All moving parts are of brass — will not rust. 4 wheel chassis for easy mobility. The finest sprinkler available for the money. Sold on money-back guarantee. Shipped prepaid cash with order.

Model 4900-6, 6 ft. length
1800 sq. ft. coverage....$45.00

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Model 4900-3, 3 ft. length
1200 sq. ft. coverage....$35.00
Model 4900-10, 10 ft. length
2400 sq. ft. coverage....$55.00

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MARCH Automatic RAINMAKER

Meet your John BEAN Spraymate makes play of spraying

Now you can fight the foes of outdoor living, beautify your home and grounds with a minimum of trouble and firing effort. John Bean, manufacturers of high-pressure sprayers for almost 70 years, offers you the *first consumer-priced power sprayer* on the market.

Kill flies, mosquitoes • Destroy weeds • Grow more "brag-able" produce and flowers.

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THE NEW
COLORADO SPRINKLER
Makes Sprinkling a Pleasure

THE SMARTEST THING ON THE LAWN

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Made of beautiful red or green, permanent color, rugged, durable material, it won't break, leak or rust. Left out in hot sun all day, it stays cool. Tapered spray holes (Patent Pending) produce millions of tiny rain drops your lawn will simply drink up. (OPS approved price, $1.80.) Introductory price, $1.49, at your dealer's, or mailed Postpaid (Money Back Guarantee).

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Jobbers, Dealers:
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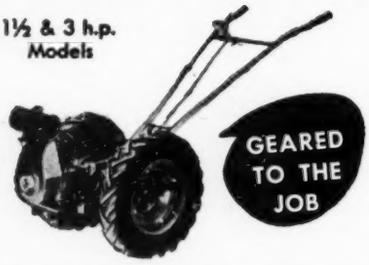
BEST IN THE FIELD!

LELAND "Terra-Tiller" GARDEN TRACTOR

1½ & 3 h.p. Models



NO BELTS, NO CHAINS, NO PULLEYS
THE TOOL FOR EVERY USE!

Geared to the job and ruggedly built for long life, the LELAND "Terra-Tiller" is unquestionably the best garden tractor in the field! The "Terra-Tiller" has big tractor power at garden tractor economy, solid pulling power, wide-angle traction and positive clutch action.

IMPLEMENTS AND ACCESSORIES

- Cultivator
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- Spring Tooth Harrow
- Gang Type Disc
- 7" Moldboard Plow
- 42" Snowplow
- Spray Pump and Tank

LELAND "Terra-Tiller" GARDEN TRACTOR
FULLY GUARANTEED for 90 DAYS
For descriptive literature and name of nearest dealer, write:

LELAND DETROIT MFG. CO.
5945 Martin Ave. • Detroit 10, Michigan

GARDENERS'

COATES GREEN THUMB SPRINKLERS. Rotary, brass or aluminum; circular or semi-circular area to 100 ft.; 8 oz. to 7 lb.; contact at sprinkler. Line includes Green Thumb Fan Spray; Nozzle Support. Coates Standard Mfg. Co., Inc., 1111 Jackson St., Tampa, Fla.

COLORADO SPRINKLER. Attachable to hose; plastic; 6 in. handle. Has fold-back prong which, released, is inserted in ground to make stationary sprinkler. Red, green. Curtice Mfg. Co., Inc., 357 Santa Fe Drive, Denver, Col.

CRYSTAL-MIST. Rotary; brass; circular area, 5 to 45 ft. Remote control by tug of hose, (sprinkler being mounted on 2-wheel truck). Guaranteed. Chicago Roller Skate Co., 4458 W. Lake St., Chicago 24, Ill.

DAYTON. Rotary and stationary types, including permanent underground sprinkler heads, also hoses or portable kinds. Brass; circular or rectangular areas; faucet control; guaranteed. Dayton Irrigation Co., 263 High St., Dayton, Ohio.

EMENEE SPRINKLER. Rotary; plastic; circular area; 7 oz.; control at sprinkler. Resembles flower and flower pot. Emenee Industries, 36-30 34 St., Long Island City, N. Y.

GOLD LABEL; TULIP; STAY FLAT; PORTABLE, others. Rotary or stationary; circular area; faucet control. "Gold Label" is rotary, 9 in. high; 3 to 55 ft. coverage. "Tulip" is stationary. "Stay Flat" used multiple or in series, comes in sets of 3 or 4 sprinklers, is substitute for underground sprinkler system. If hose turns, the sprinklers stay flat by means of heavy steel base. "Portable" is used multiple or in series. Sets of 4 sprinklers have 2 end-caps; sets of 3 have 1 end-cap. There are numerous other models including ring types. H. B. Sherman Mfg. Co., Battle Creek, Mich.

GREEN SPOT SPRINKLERS. Rotary, stationary, hand or underground types. Circular or rectangular, half circle or fan sprays to 50 ft. Brass with iron or steel base; control at sprinkler or faucet; turn of knob adjustment. The models are with 2, 3 or 4 arms, also ring-shaped stationary, or crescent-shaped stationary, fan-shaped fanning; round flower. Others. Those with arms ride on 22 stainless steel ball bearings. Scovill Mfg. Co., Waterbury, Conn.

HUBBARD. Ball bearing, rotary or oscillating, brass and aluminum, circular or rectangular area; weight 2-3 lb. and 5 lb. Faucet control. Especially for low water pressure areas. Hubbard Mfg. Co., 1014 Marquette Ave., Minneapolis, Minn.

RAINBOW; HI-BOY; RAIN CHIEF, LAWN CHIEF, RAIN WIZ; KEYSTONE. Rotary, stationary or oscillating; circular areas, 20 to 30 ft.; 1½ to 2 lb.; control at faucet or sprinkler. Keystone Brass & Rubber Co., Broad St., and Lehigh Ave., Phila., Pa.

LITTLE GIANT. Rotary, all metal, baked enamel finish, circular area to 30 ft. No working parts to clog up. Centrifugal force, works at any pressure. Yoder Mfg. Co., 1823 E. 17th St., Little Rock, Ark.

MARCH SPRINKLERS. Rotary, oscillating and fanning types of brass or iron; circular or rectangular sprays; 2 to 10 lb. (In addition to various rainmakers they make portable or overhead irrigation equipment.) Guaranteed one year. March Automatic Irrigation Co., 1355 Spring St., Muskegon, Mich.

MELNOR'S SWINGIN' SPRAY. Oscillating; aluminum; rectangular area to 2,400 sq. ft.; adjustment control at sprinkler; 3 lb.; 1 yr. guarantee. For spraying to fixed locations. Melnor Metal Products Co., Inc., 10-40 45th Ave., Long Island City, N. Y.

METCO WAVE. Oscillating type; aluminum; rectangular area to 50 ft. at 40 lb. per sq. in. pressure; 3 lb.; faucet control; guaranteed. Metallizing Engineering Co., 88-14 30 St., Long Island City, N. Y.

MIST-O-LINE SPRAY. Covers area 4-10 ft. wide. Units 10 & 20 ft. long, equipped with standard hose connection, can be coupled together for any length. Placed on ground or anchored to fence or building posts. Muellermist Irrigating Co., 2620 S. 9th Ave., Maywood, Ill.

NATURAIN. Aluminum and stainless steel; stationary; rectangular area; 20-ft. spread; weight ¾ lb. for 5 ft. section; control at sprinkler; adjustable, comes in 5 ft. sections to make as long an irrigator system as desired. No moving parts. Guaranteed. Western Home Products Inc., 475 Franklin Turnpike, Allendale, N. J.

PERFECTION. Rotary; steel base and arms; brass swivels, coupling and nozzle. Circular area to 70 ft.; 1 to 10 lb.; faucet control; guaranteed. Perfection Sprinkler Co., Box 363, Ann Arbor, Michigan.

RAIN BIRD. Rotary; brass; circular area to 40 ft.; control at faucet or at sprinkler; ¾ lb. 19 models from 1 G.P.M. to 610 G.P.M., supplied in both full and part circles. Guaranteed. National Rain Bird Sales and Engineering Corp., 627 N. San Gabriel Ave., Azusa, Calif.

RAINBOW. Rotary; brass; circular area, 60 ft.; control at sprinkler; turn of knob adjustment. Durst Mfg. Co., Inc., 409 Lafayette St., New York, N. Y.

Potting Mixtures

For potting up rooted cuttings taken from sand: 2 parts sharp sand, 1 part loam, 1 part leafmold or peatmoss.

For transplanted seedlings and for cuttings: 1 part sharp sand, 1 part loam, 1 part leafmold.

For general potting: 1 part sharp sand, 2 parts loam, 1 part leafmold or humus, ½ part dried cow manure, one 5-inch flowerpot of bonemeal to each bushel of mixture.

For plants requiring more humus than mixture above: 2 parts sharp sand, 2 parts loam, 2 parts leafmold or humus, ½ part dried cow manure, one 5-inch pot of bonemeal for each bushel of mixture.

For potting many hardwood plants, such as azalea: 2 parts sharp sand, 2 parts loam, 2 parts peatmoss, 1 part leafmold or humus, ½ part dried cow manure.

For most cactus and succulents: 2 parts sharp sand, 2 parts loam, 1 part broken flowerpots or soft brick broken into small pieces, ½ part leafmold or humus, one 5-inch flowerpot of bonemeal and one 5-inch flowerpot of ground limestone to each bushel of mixture.

GUIDE

RIEGER RANGER. Rotary; brass; circular area; control at sprinkler; turn adjustment; 4 lb. Rotation on precision ground stainless steel spindle running in oilless bronze bushing. Guaranteed. Rieger Mfg. Co., Miamisburg, Ohio.

ROSS SPRINKLER HEADS. Many types, rotary, oscillating, and stationary, mostly in brass, others die-cast, one covering a circle of 148 ft., one a 30-ft. square. Underground watering systems also mfcd. Ross Sprinkler Co., 34 Roberts St., Pasadena, Calif.

ROTORFAN. Rotary; brass; circular area 40 ft. diam.; faucet control; 1 lb. Campbell Irrigation Co., Woodbury, N. J.

ROTOR ROCKET. Rotary; brass and aluminum; circular area to 30 ft. diameter; faucet control. No adjustment necessary, fits any ¾ in. standard hose coupling. 1½ lb.; guaranteed. Moran Standard Parts Co., 10305 Dequindre St., Detroit, Mich.

SANCO FLOATING HEAD. Rotary; brass and zamac; circular area to 70 ft.; 2½ lb.; water lubricating; 5 yr. guarantee. Practically all water pressure available for coverage—no 90° turns. Sanco Products Co., P. O. Box 13, Ashtabula, Ohio.

SANCO TURBINE. Rotary; cast iron, tenite plastic head; circular area, 30-35 ft.; 1 lb.; faucet control. Action of spinner breaks up 5 streams of water into large rain-like drops. Sanco Products Co., P. O. Box 13, Ashtabula, Ohio.

SKINNER UTILITY SPRINKLERS. Rotary and oscillating types, brass. Rectangular or circular areas covered, 50-250 ft. diameter. Rain wave, spray wave, lawn mist, peacock, and border mist units. Also lines for greenhouse watering and concealed heads for underground systems. Skinner Irrigation Co., Troy, Ohio.

SPRINKLIT. Five brass sprayers with individual on-and-off control at intervals along a flexible plastic hose. Waters 1 to 1,000 sq. ft. Can also be used as ordinary hose by turning off sprinklers and removing cap. 16 lb.; 5 yr. guarantee. Howard Sales Co., 1650 Belmont Ave., New Hyde Park, N. Y.

SPRINKLEZE. Brass sprinkler with plastic hose; fan-shaped area 12 ft. diameter; faucet control; 2 lb.; 5 yr. guarantee. Does selective watering of 5 areas at one time from one garden hose. Jons Mfg. Co., 406 Dantzler St., St. Mathews, S. C.

SUPPLEX FLEXIBLE SPRINKLER. Plastic, seamless, triple tube "lay flat", wider than high with hundreds of openings along its 50-ft. length, covering swath of over 20 ft. Covers over 1,000 sq. ft. with 25 lb. pressure. Faucet control. Not spirally perforated. Can be used as a soaker. Industrial Synthetics Corp., Garwood, N. J.

SUNBEAM RAIN KING TRAVELING SPRINKLER. Rotary, chromium plated brass; circular area 5 to 50 ft. control at sprinkler; 10 in. wide, 10 in. high, 9 lb. weight. Guaranteed. Travels any course, straight, curved or around corners up to 100 ft. and then shuts off. Automatically winds up stainless steel tape to pull self across lawn, or can remain stationary. Other models. Sunbeam Corp., 5600 Roosevelt Rd., Chicago, Ill.

U. S. BRASS LAWN SPRINKLERS. Rotary; brass with heavy cast base; circular area, 10 to 75 ft. spread; 3 lb.; faucet control, 10-15 yr. guarantee. U. S. Brass Novelty Mfg. Co., 572 Wythe Ave., Brooklyn, N. Y.

WATERFAN. Oscillating or fanning; brass; rectangular area, 1,200 to 2,400 sq. ft., according to model; faucet control; 6 lb. Campbell Irrigation Co., Woodbury, N. J.

WATER WHIP. Covers circular area 50 ft. diameter with whipping motion. Zinc and rubber. Faucet control. Integrated Supply Corp., 47 Franklin Ave., Franklin Square, N. Y.

LATEST NEWS ABOUT **SAVAGE** POWER MOWERS

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COMPLETELY NEW ROTARY MOWER ANNOUNCED

"Gunmaker" Precision; Rugged Construction Features of Savage ROTOR CHIEF

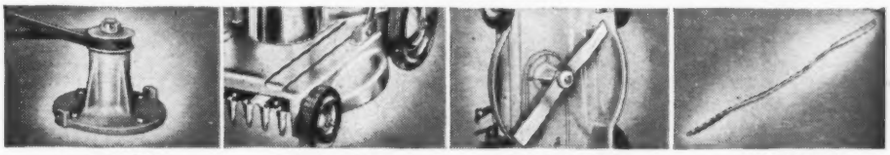
The beautiful new Savage 20" ROTOR CHIEF knifes through practically anything—high weeds, matted grass, even underbrush! Its high-speed, propeller-pitched blade sucks grass upward, clips it off neatly—then spreads it in an even mulch that is good for your lawn. Clippings and debris are deflected to the side. Cuts close to walls, fences, walks. Does away with tiresome hand trimming.

100 YEARS

Nearly 100 years of engineering accomplishments and *gunsmith* craftsmanship are back of the Savage ROTOR CHIEF. Savage has used this experience to build a mower with the extra rugged construction and precision quality necessary to give outstanding, trouble-free service. You will recognize Savage gunsmith craftsmanship instantly. See a *Savage* at your dealer's this week!

Tips on how to have a perfect lawn plus details on Savage mowers are yours in an interesting, illustrated, free booklet. Write to Savage Arms Corporation, Lawn Mower Division, 83 Broadway, Chicopee Falls, Mass.

The 20" Savage ROTOR CHIEF* rotary mower, Model 81. The Savage line includes Savage YARD CHIEF*, Model 90, 21" reel-type; Savage POWER CHIEF*, Model 75, 18" reel-type; Savage DYNA CHIEF, Model 70, 18" reel-type electric mower; and four modern hand mowers. *Reg. U. S. Pat. Off.



SAFETY-SLIP clutch and belt drive protect blade and engine from shock.

CUTS WIDER than its own tread! Large rear wheels for easy maneuvering.

RUGGED STEEL frame, reinforced for rigidity. Briggs & Stratton 4-cycle motor.

"STA-TEMP" propeller - pitched blade stays sharp; whirls at 2800 r.p.m.

this sword challenges CANCER

Under the sign of the cancer sword the American Cancer Society seeks to save lives by spreading vital facts to you, your neighbors, and your physicians . . . by supporting research . . . by providing improved services for cancer patients.

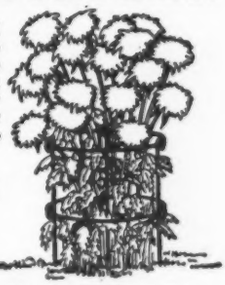
Only under the sign of this sword is there a three-fold, national attack on cancer. Cancer Strikes One in Five. Your Dollars Will Strike Back.

Mail Your Gift to "Cancer" Care of Your Local Postoffice

AMERICAN CANCER SOCIETY

Steel FLOWER SUPPORTS!

Here's a sensational bargain! Protective flower supports made from heavy galvanized steel wire. 24" high by 14" in diameter. Order NOW! Supply may be limited later.



6 for only $1.95
Postpaid
(Add 25¢ west of Denver)

PROTECT YOUR PEONIES, ASTERS AND OTHER TALL PLANTS

Keep your lovely peonies, asters and other tall plants in perfect condition throughout their beautiful flowering season. These sturdy protective supports keep them upright and prevent broken plants and stems due to mowing, rain and heavy foliage. You'll be amazed how these supports will help beautify the appearance of your plants. **Only $1.95 postage paid for 6 supports.** (2.20 west of Denver). All supports collapsible for easy storage. Satisfaction Guaranteed or money refunded. Orders shipped immediately. ORDER at this LOW PRICE TODAY. SUPPLY LIMITED.

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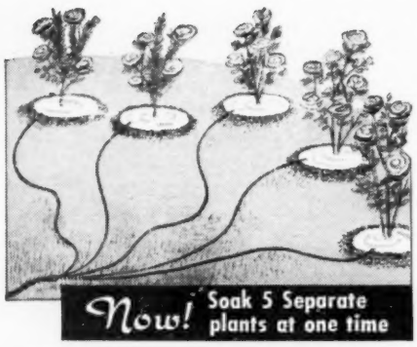
DEPT. 510 OSKALOOSA, IOWA

PAGE Garden Tractors
1953 MODELS More Work! Less Cost!

• 2 to 6 HP walking and riding machines • Over 60 attachments available! • All enclosed gear with reverse.
No belts—no chains!
Also new one-wheel "Bantam" model
Low prices — Easy terms
25 years' experience behind every PAGE — fully guaranteed!
Plows, discs, tills, seeds, cuts grass and weeds, and many other jobs!
Free Catalog Shows over 60 attachments!
PAGE 1830- S. 81st Street MILWAUKEE, WISC.



GET AMAZING NEW *SOAKEZE* ROOT SOAKER WITH 5 YEAR UNCONDITIONAL GUARANTEE

Now you can soak 5 separate plants up to 26 feet apart with the amazing new *Soakeze* Root Soaker. You can soak more plants easier and more often with *Soakeze*. And, you get unconditional guarantee with *Soakeze*. If any part of the *Soakeze* unit rots or wears out within 5 years, return it and we will send you a complete new unit at no charge.

Soakeze attaches to garden hose. Has 5 outlets with small plastic hoses attached. Pat. Pend.

SOLD ONLY BY MAIL ON MONEY-BACK GUARANTEE ORDER NOW!

Complete unit only $6.95 Postpaid

JONS MANUFACTURING CO.

406 Dantzler St. Dept. M-30 St. Mathews, S. C.

"THE MOST BEAUTIFUL LAWN IN YOUR TOWN"

SPECIAL SECTION IN April FLOWER GROWER

GARDENERS'

WHITE SHOWERS. Oscillating or stationary; brass; square or rectangular areas, 50x50 ft.; 25 lb.; control at sprinkler, at faucet. Has built-in timer, turn-of-knob adjustment, applicator for liquid fertilizer; mounted on 3-wheel truck. White Showers, 17514 Woodward Ave., Detroit, Mich.

WOLVERINE. Oscillating (adjustable); brass and bronze; sq. area, 50x50 ft.; faucet control; 16 lb.; guaranteed. John Rust Mfg. Co., 632½ W. Paterson St., Kalamazoo, Mich.

Soil Soakers

ALLEN IRRIGATORS. See description under *Sprinklers*.

GATES FLEXIBLE SPRINKLER. Plastic tube 25 ft. long containing 1,000 pin-size holes. Will water 250 sq. ft. Removable cap on far end permits flushing. Gates Rubber Co., 999 S. Broadway, Denver 17, Col.

IRRIVATOR. 3 ft. galv. iron pipe equipped with brass connection to fit any garden hose. Nozzle penetrates soil for deep-root pressure watering; clog proof. The Irrivator Co., 989 Michigan Ave., San Jose, Calif.

NATURAIN. See description under *Sprinklers*.

RESINITE SOAKER-SPRAY. Vinyl-resin flexible plastic tubing, 20 or 35 ft. long. Spiral perforations along its length for spraying or soaking. 1-1½ lb.; guaranteed. Resinite Sales Corp., P. O. Box, 1257, Santa Barbara, Calif.

SHERMAN PORTABLE and STAY FLAT. See description under *Sprinklers*.

SOAKEZE, MULTIPLE ROOT SOAKER. Brass, it attaches to garden hose; has 5 outlets each with small Koroseal hose attached. 2 are 13 ft. long, 2 are 9 ft., one is 7 ft. Weight (complete unit) 1¾ lb; faucet control; 5 yr. guarantee. (See also Sprinkleze under ***Sprinklers.*** Jons Mfg. Co., 406 Dantzler St., St. Mathews, S. C.

SPRINKLET. (See under *Sprinklers*).

SUPPLEX FLEXIBLE. All plastic, rayon-tire-cord reinforced. Numerous holes along its length, flexible. Can be shut off at nozzle and left full pressure in sun. 5 models; inside dimensions 3/8 in. to 5/8 in. Approx. 2 lb. Will not clog, mildew or rot. Industrial Synthetics Corp., 225 North Ave., Garwood, N. J.

THOMAS GENTLE-FLOW IRI-GATOR. Aluminum with brass connector. Developed for deep soaking and spot watering. Water oozes through bulb-like nozzle placed at end of hose. No adjustment necessary. Guaranteed. Thomas Mfg. Co., 3520 E. Monta Vista Dr., Tucson, Arizona.

Fertilizer Applicators

BRADSON GRO-GUN. Corrosion-proof, clog-proof sprayer head attaches to end of garden hose and to top of pint or quart mason jar for 15- or 30-gal. volume. One-finger control for spraying fertilizer. Bradson Co., 10903 Chandler Blvd., North Hollywood, Calif.

RIEGER HOSE-LINE FEEDER. Flexible plastic tube with chrome couplings for connecting with any hose, faucet, nozzle or sprinkler. Tube holds Rieger Vitalizer tablets. The Rieger Mfg. Co., Miamisburg, Ohio.

SPRAY-MIX. Dispenser for liquid fertilizer, insecticide. Brass, handle grip adjustable. Screw to garden hose, attach rubber tube to intake tube, drop spring-filter end into pail which is filled with spray mixture. Melnor Metal Products Co., 10-40 45th Ave., Long Island City, N. Y.

SOIL CONDITIONERS, MANUFACTURED

Clay soil is a special problem to the gardener because it is composed of such fine particles that water does not readily drain away from it. Roots can neither penetrate its compact, wet structure nor can they find the air they need. When the surface dries the particles adhere into a hard crust which further impedes the growth of plants. Clay soil, therefore, always needs to be "conditioned" for gardening.

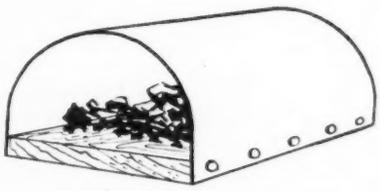
Since the advent of Krilium took the horticultural world by storm at a science meeting in Philadelphia in December, 1951, a score of other manufactured soil conditioners have appeared on the market. The great majority of these are based on a plastic compound which has the property of pulling together into clusters, or *aggregates*, the minute soil particles of clay. The larger units of air space which result allow for better drainage and thus give plant roots much more favorable growing conditions.

Soils should first be spaded and well raked before a chemical soil conditioner is applied. These new products are not designed to *change* a tightly packed, crusty soil. They are meant to *hold the soil in a flocculent condition* after a good seed or planting bed has been prepared.

Some of the soil conditioners listed below contain fertilizing elements. One is especially for alkaline rather than clay soils.

Slug-Bait Garage

• I have been troubled by slugs which breed around a neighboring pond and crawl down with unsluggish speed toward the ripe strawberries. I did not wish to put slug bait in the berry patch, since it is poisonous to humans, so I put a row of it around the outside of the bed and made traps, which I put inside the patch wherever I saw a sign of slug damage. I made the traps of tin cans, cut in half, with both ends removed, and each half nailed to



a piece of board. A spoonful of bait inside each trap attracted slugs and finished them. The tin shelter kept the bait from washing into the soil or touching the fruit.—JULIE BEDIER, N. Y.

GUIDE

ACKRIL. A pink powder applied dry. The aggregating action attracts minute particles, binding them together in small clumps, pea size or smaller, which remain stable. For 100 sq. ft. of av. soil 1 in. deep use 1¾ lb.; 5 in. deep use 5 lb. Tested by mfcr. Sold in ¼-lb., ½-lb., 1-lb., 25-lb. pkg. Bonded Chemicals, 689 S. Main St., Lima, Ohio.

ACP SOIL CONDITIONER. A powder used dry or as a spray. Stabilizes prepared soil; used also for erosion control and in soil for new seedlings. Contains essential mineral elements, fertilizer, and hormones to stimulate plant growth. To treat 100 sq. ft. of av. soil 1 in. deep use 2 lb., 3 in. deep use 6¼ lb. Tested in own research plot and at Penn. State Col. Sold in ½-lb., 2½-lb., 10-lb. canisters and 50-lb. drum. American Chemical Paint Co., Ambler, Pa.

AGROGAIR. Liquid, mixed into soil. Creates favorable environment for plant growth (to lesser degree without mixing) and concurrently supplies properly balanced blend of plant nutrients. Tested by mfcr. To treat 100 sq. ft. average soil, use 1/15 to 1/10 gal. of concentrate. Not recommended applied to depth of 3 in. Sold in ½-pt., 1-qt., 1-gal. sizes. Dist. from Va. north, incl. Pa. & N. Y., Chem. Prod. Div., Botany Mills, Inc., Dayton Ave., Passaic, N. J.

DU PONT SOIL CONDITIONER. A powder applied in liquid form to worked-up soil. It aggregates clay type soils to minimize erosion, prevent surface caking and crusting, aids plant growth by absorbing and holding moisture. Use 8 oz. to 100 sq. ft. for surface treatment. Tested by Du Pont Co. Sold in 4-oz., 8-oz. and 2-lb. containers. E. I. du Pont de Nemours & Co., Wilmington 98, Del.

FLUFFIUM. Powder or liquid applied dry or liquid. Aggregates the soil, water-stable for considerable time. Used at rate of approx. ½ pt. per 100 sq. ft. of av. soil 1 in. deep, and approx. 1 pt. to treat soil 3 in. deep. Tested by S. P. Sadtler & Son, Philadelphia; Soil Research Labs., Glenloch, Pa. and others. Garden Products Mfg. Div., Henry A. Dreer, Inc., 105 N. 5th St., Philadelphia, Pa.

GREEN GOLD. Soluble flake applied as liquid. Aggregates fine material into granules. 1 lb. active ingredient covers 200 sq. ft. to depth of 3 in. Sheldon-Cole Agr. Chem., 305 Main St., Rockford, Ill.

KRILIUM SOIL CONDITIONER, Merloam formulation. A powder, applied dry and mixed with the soil to stabilize its structure and maintain it in good tilth *after* a good seed bed has been prepared. Used at the rate of 1 1/3 lb. per 100 sq. ft. for surface seed bed preparation; 4 lb. for mixing 3 in. deep, and 8 lb. for conditioning soil to depth of 6 in. Tested in agric. depts. of all major universities and colleges and in agric. exp. sta. throughout the U. S. List available. Sold in 1- and 5-lb. pkgs. Monsanto Chemical Co., 1700 S. Second St., St. Louis, Mo.

LOAMIUM. A liquid which is both soil conditioner and fertilizer (5-10-5). It forms aggregates and prevents sheet erosion. Used at rate of ⅙ gal. per 100 sq. ft. 1 in. deep. Tested by Foster D. Snell, Brooklyn Polytechnical Inst., Boyce Thompson Inst., and others. Available in 1-pt., 1-qt. and 1-gal. sizes in stores or by mail from White House Co., 2 Kingsland Ave., Harrison, N. J. Loamium Co. of America, 12 E. 41st St., N. Y., N. Y.

NIAGARA FARM & GARDEN SOIL CONDITIONER (formerly TerraKem). Flake applied liquid; forms aggregates. Produced from basic material, Aerotil. Used at rate of ½ lb. per 100 sq. ft. of av. soil 1 in. deep, or 1½ lb. if 3 in. deep. Tested at Cornell Univ.; Calif. State Bureau of Chemistry, and agric. exp. sta. throughout country. Sold in ½ lb., 1 lb., 2 lb. pkg. Niagara Chem. Div., Food Mach. and Chem. Corp., Middleport, N. Y.

NOW... YOU can grow FLOWERS

or start PLANTS ANYWHERE with the NEW Clorocolor Fluorescent Lamps

No need to envy the professional florist any longer . . . The cabinet with its specially treated Clorocolor Fluorescent Lamps makes it possible for anyone to have strong, sturdy plants . . . you'll be amazed at the rapid growth and deep green color in only a short time. Nothing better for germinating seeds, root cuttings, or revitalizing house plants.

The cabinet is specially designed for apartment or home use . . . is 12½" high, 12½" deep and 26" long — will accommodate 10 3" pots in two plastic trays. It's decorative and easy to operate. Write for information or ORDER TODAY.

Other models from $9.95. Also large commercial clorocolor units up to 96 inches long.

NO EXTRA WIRING
JUST PLUG INTO ANY WALL OUTLET

Ideal for African Violets, Tuberous Begonias, Fuchsia, etc.

ONLY $24.95 postpaid
Complete with trays and Lamps

CLOROCOLOR 2644 N. Western Ave. Chicago, Illinois

WHEN ORDERING BY MAIL . . .

follow these simple suggestions

1. Replying to advertisements, print your name and address, city and state clearly. This will mean better service to you.
2. Be sure the name and address and department number of the company you are writing to is clear and legible.
3. Enclose all of your requests and money for offers of the same company in one envelope.

These easy rules will assure you prompt service.

FLOWER GROWER Magazine

Whatever Your Watering-Need your Best Tool is in the ALLENCO line

All Brass RING
Guaranteed under any municipal water pressure: ideal for spotting.
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W. D. ALLEN Manufacturing Co.
CHICAGO 6 • NEW YORK 7
Also FIRST in FIRE PROTECTION Equipment

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That's a good idea, glad you did. Why not fill in this coupon, attach $3.00 and give it to your newsdealer, so you can be a regular subscriber?

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ANNOUNCING A

Teammate to Krilium

Big News on the Gardening Front!

Now, there's a new water-soluble fertilizer available as a teammate to Krilium—the soil conditioner that maintains good structure.

The new product is Folium*—a balanced plant food that is applied as a leaf-feeding liquid to both foliage and roots. It is a water-soluble concentrate—absorbed through the leaves of the plant or through the root system—either being equally effective.

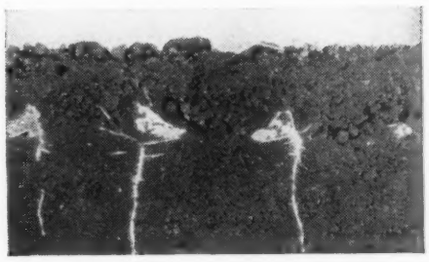
Now, when you use Krilium AND Folium together you get the double assurance of proper soil structure being maintained and proper plant food being supplied. Both promote a fuller satisfaction from all gardening activities!

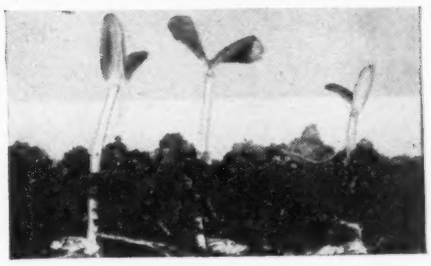
Be sure to include Krilium in all your 1953 gardening and growing plans. It maintains soil in good structure—loose, crumbly, porous—encourages freer germination, the formation of a vigorous root development, healthier emergence of a greater number of seedlings... Good structure has the added advantage of increasing the ability of the soil to absorb water—to carry it to the roots where it does the most good. Also, it promotes aeration . . . The effects of Krilium are lasting—this saves hours of back-breaking work for years.

Monsanto Chemical Company, Merchandising Division, 1700 South Second Street, St. Louis 4, Missouri. In Canada, Monsanto Canada Limited, Montreal, Toronto, Vancouver.

Krilium: Reg. U. S. Pat. Off.
**Monsanto Trade-mark*

SEE THE EFFECTS OF GOOD SOIL STRUCTURE MAINTAINED BY KRILIUM





From germination through emergence, these two pictures show the beneficial effects of good soil structure maintained by Krilium soil conditioner.

10-LB.

Recommend Krilium in larger size packages for treating larger areas.

Krilium

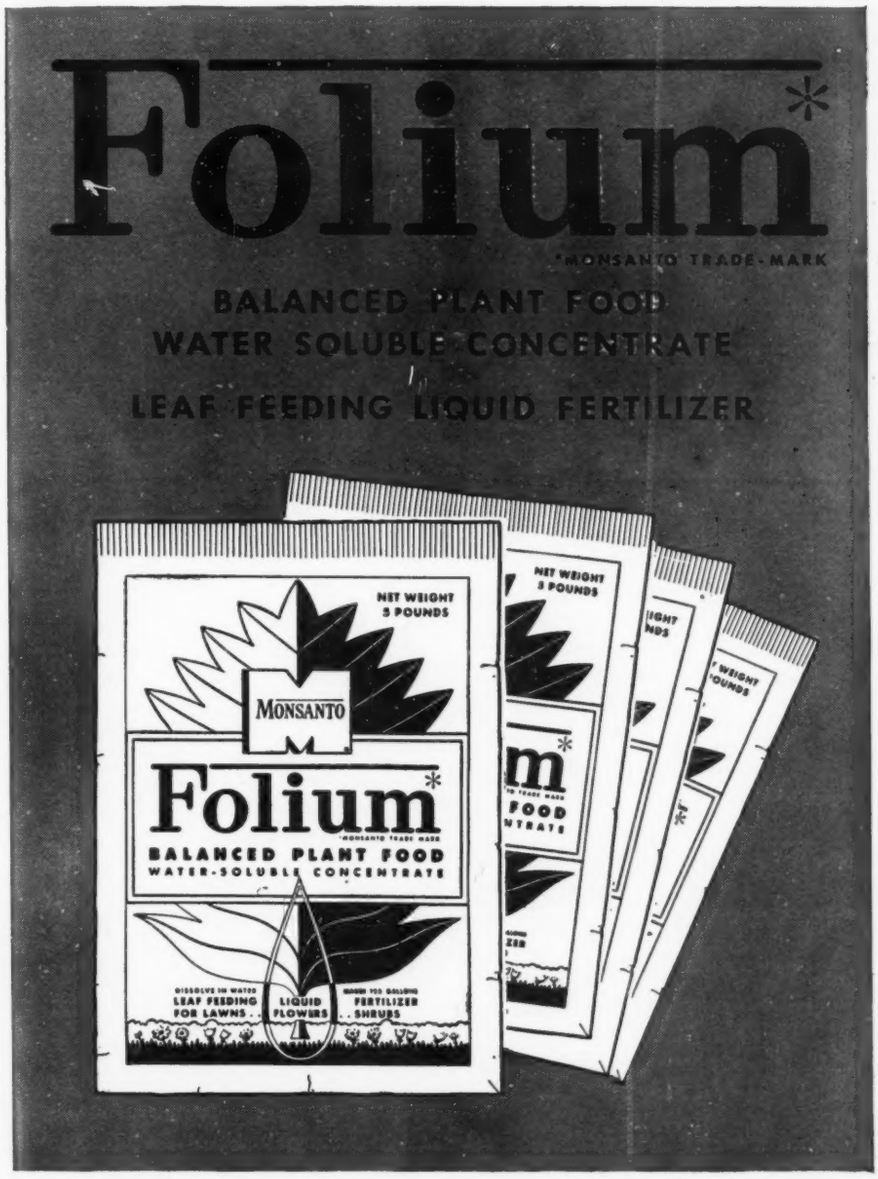
SOIL CONDITIONER

Helps Germination, Root Growth, Emergence — Maintains Loose, Porous, Crumbly Soil

A Product of Monsanto Chemical Company

MONSANTO

NEW PRODUCT

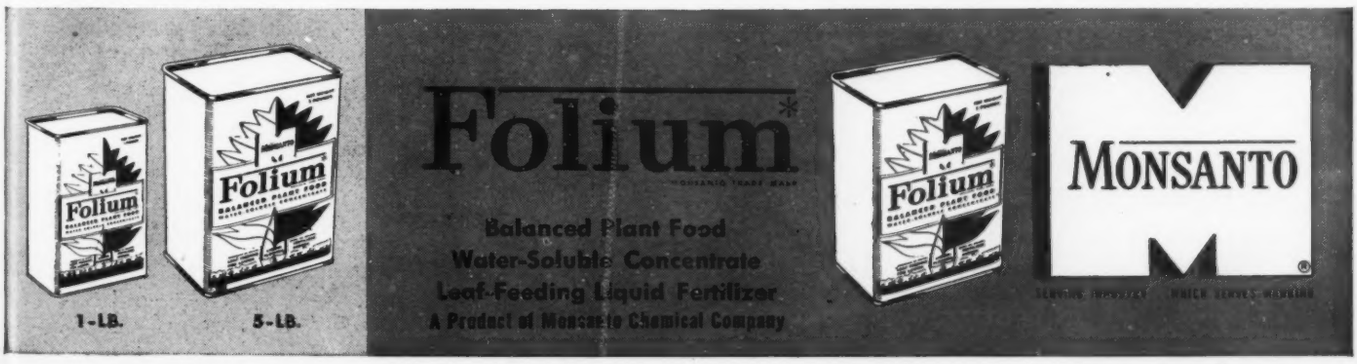


The ideal solution for Lawns, Roses, Perennials, Bulbs, Shrubs, Vines, Evergreens, Vegetables, Small Fruits, Shade Trees, Large Fruit Trees, House Plants.

It is easy to make an effective Folium solution simply by mixing with water. It is quickly soluble and easy to apply. For limited areas and smaller plant beds, an ordinary sprinkling can is all that's needed —for larger areas, it may be applied as a spray through garden hose with siphon attachment.

Packed in three handy sizes: 2-oz. foil enclosure — 1-lb. package — 5-lb. package. Very economical — 2-oz. makes 3 gallons of solution; 1-lb. makes 25 gallons; 5-lb. makes 125 gallons!

*Monsanto Trade-mark



Beautiful Lawns with OHIO SPIKE DISC Aerator

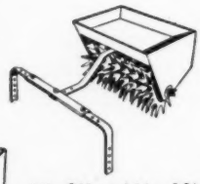
Do as professional lawn and greenkeepers do . . . aerate your lawn. Spike Disc Aerator will supply the proper kind of aeration and permit retention of moisture, all tending to combat ugly "brown patch", so prevalent in summer months.

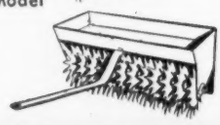
Simply run the Spike Disc Aerator over your lawns as you do your mower, the spikes do the rest.

The Spike Disc Aerator will not harm the appearance of the lawn as the turf hides the thin slotted cuts. Large models are in use on almost all the better golf courses.

Also for best results, Spike Disc should be used before reseeding, fertilizing, top dressing or application of liquid soil conditioners. By light sprinkling after use, the seed and fertilizer are settled into the perforations and not washed away by flooding rains or high winds.

No. 8 Hand Model





No. 8H and No. 12H for attachment to power mowers.

Manufactured by
Ohio Machine Products, Inc.
Columbus 11, Ohio

For more information write to:
John H. Graham & Co. Inc. Dept. FG
105 Duane St., New York 8, N. Y.

ACTUMUS

PRESERVES AND RESTORES SOIL FERTILITY

Let Actumus do the work while the garden grows. See for yourself how it reduces chores to a minimum, increases gardening joys to a maximum. GET RESULTS. Dust Actumus powder on lawn, flower and vegetable seeds, and on roots of plants when planting. Use Actumus in solution on all new plantings, and on established plants, flowers, lawns, bushes, shrubs and trees. 100% Natural. Odorless. Cannot burn in whatever quantity or frequency it is applied. Get some now and join thousands of satisfied users.

AT YOUR STORE, or mailed postpaid by:
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THE BURKLEIGH CO., P.O.B. 6731, Towson 4, Maryland
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THE MILL-RADD CO., 12304 Superior Ave. Cleveland, O.
ORGANIC SUPPLIES, P.O.B. 820, Pittsfield, Mass.
PETER HENDERSON, STUMPP & WALTER CO., 132 Church St., New York City, and all other stores.
ST. LOUIS SEED CO., 411 N. Bdway, St. Louis, Mo.
Dealers write
FOREIGN PROD. CORP., 1270 Bdway, N.Y.C.
or send for **FREE FOLDER** or **25c trial packet**

GARDENERS'

NU SOIL. Flake. Soil must be raked or cultivated before application. Binds earth particles together to form granular porous soil structure. Use 8 oz. in 8 gal. water per 100 sq. ft. of soil 1 in. deep; 1 lb. in 16 gal. water to treat soil 3 in. deep. Tested by N. J. Agric. Exp. Sta.; Am. Cyanamid Co. Sold in 1-lb. pkg. Dist. regionally. Mail order, Garden Research Lab., Madison, N. J. Mfc. by same, 699 Madison Ave., New York 21, N. Y.

ORTHORIX SPRAY. A sulfur fungicide and soil corrective to improve plant growing conditions in *alkaline* soil and to improve water penetration in heavy soils. Also used to control mildew, peach leaf curl and other diseases. For 100 sq. ft. of soil use 1 tbsp. in 3 gal. of water. Packaged in 4-oz., 16-oz., 32-oz., and 1-gal. bottles and in 5-gal. drums. California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif.

ORTHO-TIL POWDER. Used dry. Keeps soil loose and friable for indefinite time. Must be brought into contact with individual clay particles. Soil is first worked into fine texture before application of powder. For 100 sq. ft. of average soil 1 in. deep, use 2 lb., to treat soil 3 in. deep use 6 lb. Sold in ½ and 3-lb. pkgs. California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif.

ORTHO-TIL SOLUBLE. Flake form, used liquid. Creates granular porous surface soil structure with stability to rainfall and other water erosions. Keeps soil loose and friable for indefinite time. For 100 sq. ft. of av. soil 1 in. deep, use 1 lb., to treat soil 3 in. deep, use 3 lb. Sold in 4-oz. and 1-lb. sizes. California Spray-Chemical Corp., Richmond, Calif.

POLY-ACK. Sodium polyacrylate. A liquid soil-conditioner. Use 1/10 gal. to 100 sq. ft. av. soil 3 in. deep. Tested since early 1952. Comes in 1-gal. cans, 55-gal. drums, tank wagons and tank cars. Distributed by Wilson Dye & Chemical Distributors, Inc., 35 Water St., New York, N. Y.; Wilson Organic Chemicals, Inc., Sayreville, N. J. (mfcr).

RHINEHART SOIL CONDITIONER. Liquid to be diluted and thoroughly mixed in top layers of soil *after* all lumps and heavy clods have been broken. Brings about formation of soil clusters when used on hard and clay-type soil. Use 1 qt. to 216 sq. ft. 1 in. deep, 1 qt. to 72 sq. ft. 3 in. deep. Tested by American Polymer Corp., Peabody, Mass. Sold in gallon, quart, pint, ½-pint and 1-oz. bottles. Rhinehart Co., 1127 Polk St., Fort Wayne, Indiana.

SOILIFE. Powder or flake, used dry or liquid. Aggregates and loosens clay type soils, providing porous soil structure with marked stability under influence of rainfall and other weather factors. Apply *after* clods and crusts have been broken up and raked. For 100 sq. ft. of average soil 1 in. deep, use 6 oz. flake or 1¼ powder. Tested by Stamford Research Labs., American Cyanamid and many other leading agric. exp. sta. Lists obtainable from Cyanamid. Comes in packages to cover 50, 100, 200, 400, 2,000 sq. ft. Nott Mfg. Co., Box 87, Mount Vernon, N. Y.

TERRASOL. A soil conditioning powder containing also soluble plant food, hormones, and substances to release mineral elements from soil. Applied either dry or liquid, ½ lb. to 100 sq. ft. of average soil 1 in. deep, 1½ lb. to 3 in. deep. In clay soil increases pulverization into aggregates; in sandy soil binds soil particles together and enables soil to hold up to 400% more moisture over long periods. Tested at Rutgers Univ., by U. S. D. A., and at Rothamsted Agric. Testing Sta. in England. Avail. in 1 and 4-lb. pkg., in stores in N. Y., N. J., and Conn., or by mail from Drum Chemical Mfg. Co., 41 Ross St., Brooklyn, N. Y.

TILTEX. Powder or liquid applied dry or liquid. Binds minute soil and clay particles into porous spongy clumps which can best utilize sun, rain and air for max. plant growth and prevents crusting, slaking and cracking of soil. Tiltex now incorporates a new chemical stabilizer which improves the conditioning properties of the soil. Experimenting with addition of fertilizer; may have by early 1953. Used at rate of ⅔ qt. (liquid) or ⅔ lb. (powder) to 100 sq. ft. of average soil 1 in. deep, and 2 qt. (liquid) or 2 lb. (powder) to treat soil 3 in. deep. Tested in labs, greenhouses and gardens. Sold in qt., gal., and 5-gal. cans or 2-lb., 5-lb., 50-lb. and 200-lb. pkgs. Long Island Paint and Chemical Co., Glen Cove, N. Y.

TUFFY (formerly Soilair). Powder or liquid, applied dry or liquid to soil showing traces of clay, and made crumbly to depth of 3 to 6 in. before treatment. For 100 to 200 sq. ft. of surface soil, use about 1 gal. of concentrate properly diluted, and spray over soil. Tested in soil lab., Mass. Inst. Tech., Cambridge, Mass., and Agric. Field Sta., Waltham, Mass. Liquid comes in 1-gal. can and 55-gal. drum. Avail. in Boston or from Protective Coating Co., Newtonville, Mass.

Soil Particles

SIZE CLASSIFICATIONS

American Bureau of Standards Scale:

Name of fraction	*Limits of dia. of particles in mm.*
Fine gravel	2 to 1
Coarse sand	1 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.005
Clay	Below 0.005
Colloidal fraction	Below 0.002

International Scale:

Name of fraction	*Limits of dia. of particles in mm.*
Gravel	Above 2
Coarse sand	2.0 to 0.2
Fine sand	0.2 to 0.02
Silt	0.02 to 0.002
Clay	Below 0.002

MINERAL COMPOSITION

1. Quartz. This is by far the commonest mineral in soil, most resistant to decomposition, takes up 90 to 95 per cent of soil.
2. Feldspars: potash feldspars, soda feldspars, calcium and soda.
3. Micas: aluminum silicate, potassium, magnesium, iron. Not very resistant to decomposition.
4. Pyroxenes and amphiboles, complex group containing magnesium, calcium, iron silicates. Not very resistant to decomposition.
5. Various minerals.

GUIDE

- **Readers' Report on Soil Conditioners—six columns of what Flower Grower readers think of synthetic soil conditioners—begins on page 6.**

NATURAL SOIL CONDITIONERS

Chemical soil conditioners—those miracle products of 1952—have brought within the arc of their spotlight soil conditioners of all kinds, including numerous natural products which improve the texture of the soil. Peat, marl, and other substances, either by their bulk or by chemical reaction, flocculate and open up clay soils or bind together sandy soils. In clay, the result is better aeration and drainage; in sand, longer retention of moisture with its dissolved nutrients. Roots have a better chance to grow and plants gather these nutrient elements in a soil of friable texture—that is, one in good tilth.

Some soil conditioners have in the past been commonly known as *soil amendments.* Among such products are lime in its various forms for increasing the alkalinity of a soil, and aluminum sulphate or ammonium sulphate for increasing soil acidity. These products are all regularly sold in hardware and garden supply stores.

Home products ranking as soil conditioners include sifted coal ashes, which open up heavy clays. Wood ashes are a supplier of lime, also of potash and other elements. Mulching materials frequently serve also as soil conditioners.

Some fertilizers, particularly the organic types, are classed as soil conditioners by their manufacturers. However, if from their formula their principal purpose appears to be the provision of nutrients, they are classified here under *Fertilizers.*

Peat and Other Organic Products

ACTIVO. See description under *Compost Activators.* 26 lb. will condition 100 sq. ft. of average soil to a depth of 3 in.; 55 lb. to 6 in. Avail. in stores, through 200 catalogs, or directly from Benson-Maclean, Bridgeton, Ind.

ALLEN'S PEAT HUMUS. Avail. in bushel bags in garden supply stores in no. Ind., so. Mich., cent. Ill., or by mail from Allen's Garden Shop, Karwick Road in Long Beach, Michigan City, Ind.

CORRY BOG PEAT HUMUS. A sedge peat with 65.06% organic matter, 3.9% nitrogen, and a pH of 5.75. 100-400 lbs. per 100 sq. ft. Avail. in 2, 5, 25, and 50-lb. bags in Pa., N. Y., and Ohio, or from Corry Bog, Inc., Corry, Pa.

FORTIFIED PEAT-HUMUS. Contains vermiculite; energized with Activo (see under *Compost Activators*). Mixed directly in soil, 5-75 lb. per 100 sq. ft. Suggested for large-scale soil conditioning and building. Avail. in 50-lb. bags and in bulk from garden supply stores or from Benson-Maclean, Bridgeton, Ind.

FRAIM'S ORGANIC ACIDIFIER. Brown powder which dissolves immediately in hot or cold water. Comes directly from wood of selected species of trees. Applied as liquid or powder, 1 lb. to 1 gal. water. Avail. from Fraim Mfg. Co., Granby St. at 39th, Norfolk, Va. Soil-Tone Corp., Inc., Plymouth, N. C.

HUMIX. Combination of humus and decayed peat moss, pulverized. Use one ton per 650 ft. (300 lb. per 100 sq. ft). Comes in 25, 50, 100-lb. sizes. Distr. in Pa. and N. J. Blue Ridge Soil Pep Co., Inc., White Haven, Pa.

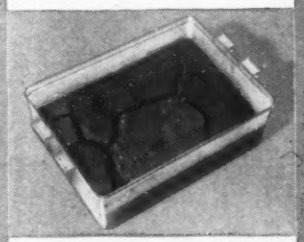
HYPER-HUMUS. Cultivated native peat; 80-90% organic matter, black, granular, odorless, free from weed seeds. Use 50-300 lbs. per 100 sq. ft. Avail. in 25, 50, 80 and 100-lb. sizes. In e. U. S. Hyper-Humus Co., Box 263, Newton, N. J.

LOW COST SOIL MAGIC

LAWNS...GARDENS
SHRUBS...TREES
Thrive as Never Before with
NATURE'S OWN
MINERAL
SOIL CONDITIONER

HOW TERRA-LITE WORKS ITS SOIL MIRACLE

Actual unretouched photos below show dramatic 5-week side-by-side tray-test—proof of Terra-Lite's amazing soil conditioning properties.



(a) After 5 Days—soil without magic Terra-Lite hardens, cracks, cakes.

(b) After 5 Weeks—Terra-Lite conditioned soil remains light, workable—no sign of caking.

As low as $2.25 to condition 200 sq. ft.—a fraction the cost of unproved conditioners!

Now! You can have lovelier gardens, thicker lawns, healthier trees and shrubs—with less watering, less work, less care—*and at less cost!* As low as $2.25 conditions 200 square feet of heavy, caked soil ...makes it more workable, loose and porous.

Miracle-working TERRA-LITE is not a fertilizer; not a chemical, nor organic—but an amazing *mineral* soil conditioner that lightens and aerates heavy clay soils ...gives sandy soils more body...retains, releases moisture and air in just the right amounts.

Why pay fancy prices for *unproven* soil conditioners—when TERRA-LITE can make your garden thrive as never before—*at less cost!* Get TERRA-LITE today...at leading garden supply dealers.

TERRA-LITE DIV. Zonolite Company
135 S. La Salle St., Chicago 3, Ill.

Write for
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135 S. La Salle St., Chicago 3, Ill.
Please rush me FREE Booklet TL-8 about Terra-Lite vermiculite, the magic mineral soil improver.

Name.....
Address.....
City.....*Zone*.....*State*.....

AT LEADING GARDEN SUPPLY DEALERS

Hyper-Humus

CULTIVATED Native PEAT

Seal-Packed for Freshness

Organic Soil Conditioner and Improver

A superior native black peat, specially conditioned for greater efficiency. It's alive with beneficial soil organisms. Ready to use; improves any type of soil—sandy, clay, loam. *Use freely for—*

LAWNS • FLOWERS • VEGETABLES

Wonderful for Evergreens, including Broadleaf kinds

"Make Top-Soil Out of SUBsoil"

A money-saving plan for a better, less costly lawn

Write for special Top-Soil Bulletin and "Better Roots" folder

Ask your dealer for HYPER-HUMUS . . . Four Sizes

FREE "TOPSOIL" Bulletin

HYPER-HUMUS COMPANY
Box F, Newton, New Jersey

TO GET MORE BLOOM

Dust your bulbs, corms and flower roots with Du Pont "Arasan" seed disinfectant. "Arasan" controls many soil-borne diseases: Fusarium rot and scab of gladiolus, basal rot of narcissus, and many destructive diseases of tulip, iris and lilies. Your bulbs store better, come up better and give you better blooms.

Use ARASAN®

COMPOST

Grow Power brand. Ready to use—for those who can't make enough of their own. Made from mixed manures; fortified with minerals, biotics, hormones, vitamins and enzymes; and ENERGIZED WITH ACTIVO! We believe you'll find this the richest, best balanced compost made in the world today. Use for lawns, flowers, vegetables, shrubs, trees.

Trial 10-lb. bag, $1.95 p'pd. 100 lbs. (2/50-lb. bags) $2.69 FOB dealers or
GROW POWER COMPOST CO., Bridgeton 26, Indiana.

COMPOST—

AS YOU LIKE IT

SCREENED
SHREDDED
GROUND
MIXED
PILED

Now, with two wheels and one-piece, tubular handle bar, this improved, self-powered grinder can be moved twice as easy. Mixes and screens soil, compost and other fertilizers fine enough for seeding flats and pots. Grinds leaves, stalks and other tough organic matter into ideal mulch or compost material. Separates trash from wanted materials. Easy to change from screens to rollers. Motor optional.

$124.50 less motor, F.O.B. Wichita

W-W GRINDER CORP.

DEPT. G WICHITA, KANSAS

Every tooth in every blade digs the soil like a spade

Works as you walk!

40 Rotating hoe points and 5 cultivator teeth do the job 10 times faster than hoe and rake. Makes gardening easier—more fun—better crops. For extra fine seed beds use—

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Weeds—Hoes
Mulches
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Easy as mowing a lawn. Kills weeds and mulches soil. Write for Free Folder.

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SMALL! POWERFUL!

America's finest low cost tractor. Ruggedly built. Easy to operate. No belts, no chains. Borg-Warner clutch, trans. and diff. 140 to 1 reduction. 40% more drawbar pull than ordinary tractors. 8-1/4 H.P. engine--gasoline or kerosene. 20 quick change implements. Write for complete details.

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915-D3 Niagara Ct., Waukesha, Wis.

Your Soil Needs This *Natural* Organic Soil Conditioner

LONGHORN BRAND

DEHYDRATED – PULVERIZED

WEED FREE WEED FREE

CATTLE MANURE

Immediately available at your dealer's in 1½, 5, 10, 25 and 50 lb. paper bags.

- Increases soil's moisture holding capacity
- Increases humus content of soil
- Stimulates beneficial soil bacteria

FAESY & BESTHOFF, Inc.
325 Spring St., New York 13, N. Y.
Exclusive Sales Agents for Natural Plant Food Co.

M-16 SUPER-HUMUS. Contains tobacco stems, citrus meal, fibrous peat, colloidal phosphate, basic slag, and several minor elements composted by a selected group of soil bacteria. Worked into top 4 in. of soil, use 15 lb. per 100 sq. ft. For potted plants also. Avail. in 1, 1½, 3, 25, and 50-lb. plastic or plastic-lined bags in stores or by mail order. M-16 Products, Inc., Box 450, Leesburg, Fla.

MICHIGAN PEAT. A peat moss from rich natural bogs in Mich., processed and "bacti-vated," screened ready for use. 10 lbs. up per 100 sq. ft. for top dressing, mulching and soil conditioning. Avail. in 5 sizes up to 100-lb. bags and in bulk at garden supply stores or by mail from Capac, Mich. Michigan Peat, Inc., 267 Fifth Ave., New York 16, N. Y.

NEW ERA PEAT HUMUS, for conditioning soil, esp. for potted plants. Available in plastic bags 1, 3, 10, 25 & 50 lbs. E. of Miss. river. Clinton Nurseries, Clinton, Conn.

ORGANIC SOIL CONDITIONER. Worked into soil lightly, it granulates and stabilizes clay, sand, and other problem soils. It includes plant nutrients, also natural polyuronides. "Has greater manurial value than barnyard manure." Use 5 to 10 lb. per 100 sq. ft. of soil. Sold in 5, 10, 50-lb. bags at stores or from Fraim Mfg. Co., Granby at 39th St., Norfolk, Va. Soil-Tone Corp., Inc., Plymouth, N. C.

PEAT MOSS. More correctly, "moss peat," since it is a type of peat (decomposed submerged vegetation) formed principally of mosses and generally of sphagnum moss. Incorporated into soil, approx. 20 lb. per 100 sq. ft., it is a good conditioner, loosening texture and greatly increasing water-holding capacity. Generally acid in reaction, though in varying degree according to its source and type. For names of distributors, see *Mulching Materials.*

TOBACCO POWDER. 100-mesh. Recommended worked into soil around roses to improve porosity and discourage soil-borne pests. Also for composting. In 1, 5, 10, 25-lb. bags. Goulard & Olena, Skillman, N. J.

Mineral Products

ALUMINUM SULPHATE. Use 5 lb. per 100 sq. ft. to acidify av. soil. In 5, 10, 25-lb. bags. Goulard & Olena, Skillman, N. J.

CALFIDE. A natural mineral mixture mined in Col. Rockies. It contains calcium, magnesium, sulphur and trace minerals plus secondary plant nutrients. A fine powder to be broadcast, side-dressed, top-dressed, or dug in. Use 2 lb. per 100 sq. ft. Sold in 5, 10, 25, 50-lb. pkg. Calfide Distributing Co., 209 West Jackson St., Chicago, Ill.

HOOVER'S MIX. A 50-50 mixture of colloidal phosphate and greensand, to be applied to soil surface or dug in, 30-60 lb. per 100 sq. ft., as a soil conditioner and fertilizer, to increase water-holding capacity, and make more of soil's plant food available to roots. Available in 25 and 80-lb. bags from Joe Francis, Route 1, Terre Haute, Ind., and other dealers. Hoover Soil Service, Gilman, Ill.

KAYLORITE. Glauconite marl (greensand), finely ground (95%-100 mesh). Contains 6-8% total potash, 1.3% phosphoric acid, 10% iron, 10% magnesium, and traces of many other minerals. 10 lb. broadcast per 100 sq. ft. Sold in 100-lb. bags by Ohio Rock Phosphate Sales Co., Route 6, Springfield, Ohio.

MARLAND. Greensand or marl (glauconite), an iron-potassium-silicate, for binding sandy soils, loosening clay soils, regulating moisture and stimulating soil organisms and regulating soil temp. 5-30 lbs. (av. 10-20) per 100 sq. ft. of soil, slow-acting. Avail. in 25 and 100 lb. bags in agric. supply stores or by mail from mine at Medford, N. J. or from Nat'l. Soil Conservation, Inc., 90 W. St., New York 6, N. Y.; also from the soil service companies of Fred A. Veith, Cincinnati 11, Ohio;

GARDENERS' GUIDE

Hespen, Fremont, Neb.; Joe Francis, Terre Haute, Ind.; Schroder, Cherryvale, Kan., and Jess M. Fanning, Monroe, Mich.

ORGA-MIN. A natural product mined in Texas; approx. 35% organic matter, 65% minerals and trace elements; pH 3.5. In granular form, applied dry 8-16 lb. per 100 sq. ft., fairly fast-acting but not immediately soluble. Avail. nationally or by mail order from Orga-Min Distributing Co., 1227 Manor Av. SW, Canton 10, O.

Cover crops are not included here, although they improve both texture and content of the soil when they are turned under as green manure. F. E. DeBerry of Fort Scott, Kan., is marketing a special product for this purpose—a package of mixed seeds inoculated with nitrogen-fixing bacteria, prepared by Agricultural Laboratories, Inc., Columbus 16, Ohio.

VERMICULITE. Exfoliated mica in the form of fine, porous flakes, a completely sterile, highly absorbent, mineral product which does not break down when incorporated into soil. 2 cu. ft. will condition 100 sq. ft. of av. soil, increasing its water-holding capacity and improving aeration. Recommended also for seed-sowing either alone or with chopped sphagnum. For manufacturers' names, see *Mulching Materials.*

COMPOST ACTIVATORS

These materials speed the process of decomposition of garden wastes and other organic refuse, breaking it down into granular humus in a fraction of the time required under unaided natural conditions. They may be used either in compost piles outdoors or in enclosed compost bins, of which a number of makes are listed below. For similar but bulkier materials, see *Activated Composts.*

ACTIVO. A moist granule containing enzymes, biotic substances, minerals, hormones, and ærobic bacteria, including thermic, sulfur-oxidizing, cellulose-splitting, cellulose-digesting, and nitrogen-fixing strains. Reacts on garbage and rich materials in 2-4 wks.; on dry cellulose type materials, 4-28 wks. Used also as soil and mulch energizer, fertilizer activator, and soil conditioner. Packaged in 7 sizes for treating from 425 lbs. to 240 tons of compost. Benson-Maclean, Bridgeton, Ind.

ADCO. A fine, heavy powder with indefinite keeping quality, odorless, and harmless to animal life. 5 lb. will convert non-woody garden waste into 200 lb. artificial manure, ready for application as fertilizer in a few weeks' time. Avail. also in 20, 100, and 150-lb. bags. Adco Works, Carlisle, Pa.

B.C.A. A compost activator containing hormones, vitamins, minerals, including all trace elements, and soil bacteria to speed breakdown of organic wastes and provide added nutrients. One unit (approx. 1 lb.) to be sprinkled through compost pile or dissolved in 100 gal. water or more for ¾ ton compost. Can also be used on soil as fertilizer. 2, 6, and 25-unit pkgs. also avail. Organic Products Co., 235 Halsey St., Newark, N. J.

B. D. COMPOST STARTER. Contains several species of soil bacteria and growth-promoting substances to bring about a breakdown of organic matter, transforming it into stable humus products with high nitrogen content. One oz. treats 1 ton of raw material, which shrinks to about 60% of original weight. Effective in 3 wk. on ground or shredded material, 2-3 mo. on unground. Avail. in 1-oz. or larger quan. only from Biochemical Research Laboratory, Spring Valley, N. Y.

BENSON-MacLEAN COMPOST STARTER. A formulation containing more than 30 elements for speeding the action of bacteria in dry composting materials. To be used in composting cabinets or outdoors, 2-4 lbs. for each 100 lbs. compost. Avail. in 10 lb. cans and bags. Benson-Maclean, Bridgeton, Ind.

BIOMISED AGRICOLLOID. A gray powder composed of seaweed of a special type, chalk, and organic nitrogen. Breaks down organic waste material into rich odorless compost without turning in 6-8 wk. in summer, though longer period is preferable. No. 1 size makes 1 ton compost. Avail. in 7, 28, 56, and 100-lb. pkgs. Sold in stores in England only. By mail from Finch & Knight, Ltd., Bracknell, Berkshire, England.

COMPOGERM. A group of selected bacteria for controlling action in production of compost. Will work in 60 da. in average compost pile, 30 da. in a compost bin, 5 da. with a shredder system, 24 hrs. with a continuous flow digestor. Available in 1 lb. pkg. containing 6 units. Should be kept moist and cool until used. Sold in stores or by mail from Benson-Maclean, Bridgeton, Ind. (as Activo); Organic Products Co. 235 Halsey St., Newark 2, N. J. (as B.C.A.); Earp Laboratories, Hampton, N. J. (as Nitro-Sulfo Culture).

FERTOBAC. An all-organic activator containing yeast, fungi, bacteria and enzymes for the conversion of organic materials into usable composts; effective in 1-3 mo.; pkgd. in quan. for making 1, 3, 5 & 10 tons of composted humus. Avail. only from Keston Organic Products Co., P. O. Box 87, Haddon Hgts., N. J.

"Better SOIL—Better Garden"—*Flower Grower*

Do not pull out annuals. If they are cut close to the ground, the decaying roots will help aerate the soil and add organic matter deep into the subsoil, thus enriching a layer of soil which cannot be reached by usual cultivating methods.

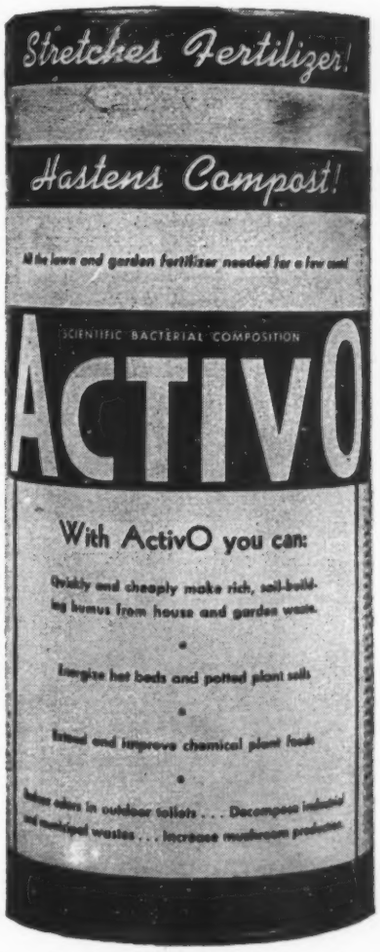
Hillside lands that have little topsoil can be held and protected from erosion by preparing small pockets or local areas of good soil, conditioning them by manure or peatmoss, and using plants which root as they spread, such as sedum, ajuga, creeping phlox, pachysandra, ivy, myrtle, ceratostigma, etc.

When shrubbery and perennials are already in the ground, and the very clayey soil needs conditioning, these plants can be removed after the earth has been frozen, three inches of manure can be added, and the plants replanted at once.

Rye, oats and other shallow rooted plants will help break up heavy blue clay soils.

A hard packed alkaline soil can be made friable and productive by using sulphur to neutralize the alkalinity, drainage to help remove excess water and aerate the soil, and manure, peatmoss or soil conditioner to loosen the soil.

NOW
IS THE TIME
to use this can of
"Garden Magic"



Better Than Fertilizer!

ENERGIZES! Better than fertilizer because it helps build **permanently**-rich soil; adds life, "condition" energy, **balance** and vitality—actually makes any kind of fertilizer more efficient while conserving and **softening** it. **ACTIVATES!** Better than fertilizer because it **MAKES** the richest kind of natural fertilizer out of waste—leaves, grass, kitchen and table scraps, sludge, industrial and municipal wastes . . . even sawdust and soot. Does it cheaply, ANY TIME OF YEAR, and in as little time as 2 weeks. Converts putrefactive materials without odor. Makes composting possible, without heap-making, right in the garden.

Use it in your mulches, dressings, soils, and fertilizers. Use it now—anytime. Plant ActivO with your seed and see the difference! . . . **Send now for FREE details on these and other valuable uses. And get your trial unit today.** At dealers $1 to $19.95 or send coupon.

BENSON-MACLEAN, Bridgeton 36, Indiana

Rush direct or thru nearest dealer:

☐ .... Size for 1300-1700 lb. compost or energizing 2400 lb. fertilizers, mulches, etc., $2.59, postpaid with FREE plans for Composter Cabinet.

☐ .... Size for 2 tons compost or conditioning and energizing 6500 lbs., $5.95 postpaid with free cabinet plans.

☐ Free information on ActivO, composting and dynamic soil energizing and conditioning.

Name .....

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GARDENERS' GUIDE

FOURMONE. An organic powder stated to "activate the hormones which penetrate the pores of sawdust to release plant nutrients." Effective in 24 hr. Avail. in small-size pkg., also in 1, 5, 20, and 100-lb. units, only by mail order from Burkleigh Co., Towson 4, Md., or Foreign Products Corp., 1270 Broadway, New York 1, N. Y.

GARDENER'S FRIEND ACTIVATED COMPOSTER. A bacterial culture especially for use in Gardener's Friend compost cabinet, also known as Garden Magic compost cabinet. Gardener's Friend products avail. from O. E. Zimmerman, Fairfax, Minn.

G & O COMPOSTER. A powder containing sulphate of ammonia, superphosphate, muriate of potash, ground limestone, and tobacco dust, 6-4-6. One lb. to be added to each bushel of garden and kitchen waste, pile to be turned after 3 and 6 mo. In 5, 10, 25-lb. bags. Goulard & Olena, Skillman, N. J.

MECO. A coarse powder containing bacteria, fungi, enzymes, and vitamins, applied either dry or in water for decomposing compost. Effective in a few weeks, the time depending on material, moisture, temperature, etc. Can also be used as a fertilizer for potted plants or as a deodorizer for garbage cans and outdoor toilets. Avail. in units for treating 1 ton of compost, by mail only, from Mac Engineering Co., Lewisburg, Pa.

QR. A powder with herbal basis to stimulate microorganisms in production of compost from kitchen and garden wastes. Long-lasting in dry form. Effective in 6-10 wk. Avail. in ¼ and 4-oz. pkg., to activate 4 or 60 tons of compost. Distr. in U. S. by Waldor Greenhouses, Salem, Mass., and L. N. Roberson Co., 1539 E. 103rd St., Seattle 55, Wash. Mfcd. by Chase Protected Cultivation, Ltd., Shepperton, Middlesex, England.

SUPER "BACS". Ehrenfried Pfeiffer cultures of bacteria for activating compost, to be used either in powder or liquid form. Decomposition of rough materials complete in 2-3 wk.; after curing period of 2-3 wk., material resembles good black dirt. Avail. in ¾-oz. and 1-lb. pkg. in seed stores or from James F. Webb, Millhall, Pa.; Leo Phlouf, Milbank, S. D., or Northern Field Seed Co., Winona, Minn.

ACTIVATED COMPOSTS

In contrast with the Compost Activators, above, the Activated Composts are themselves in compost or humus form. They may be used either directly in the soil or mixed into the compost pile.

ALKEMI SOIL ACTIVATOR. A "soil treatment" containing organic and mineral matter, nitrogen, phosphate, potash, lime, pest repellents, bacteria, vitamins, hormones, and enzymes. Can be used when sowing, transplanting, or preparing soil for garden. Available in 5 and 10-lb., also larger bags. Earp Lab., Hampton, N. J.

BACTERRA. A "bacterized" humus in granular form, 2-4-2 plus 26 trace elements, pH 6.8, 100% organic, slow-acting, of value as soil conditioner when worked into top 3-4 in. of soil, 7-17 lb. per 100 sq. ft. Sold in stores or by mail from Bacterra Corp., P. O. Box 931, Reading, Pa.

M-16 SUPER-HUMUS. Contains 14 selected groups of bacteria. Effective in decomposing compost in from 30 da. up. See description under *Soil Conditioners, Natural.* M-16 Products, Inc., Leesburg, Fla.

ORGANO. A compost containing selected soil bacteria and small quantities of balanced minerals to suit the grower's need, for use in neutral soils only. Can be applied on surface, in seed drills, or worked into soil, also as a compost activator. Available in 50, 100-lb., and 1-ton bales from Earp Laboratories, Hampton, N. J. Organo Compost Plant, Harmony, Pa.

SUPER GRO "BACS". A compost which has been treated and activated with Super "Bacs" concentrate. 200 lb. applied per acre will reduce all surface organic matter to compost in 4-6 wk. Avail. in seed stores in 50-lb. bags or from James P. Webb, Millhall, Pa.; Leo Phlouf, Milbank, S. D., or Northern Field Seed Co., Winona, Minn.

SUPER GRO COMPOST. See description under *Fertilizers, Organic.* Northern Field Seed Co., Winona, Minn.

COMPOST BINS AND CABINETS

With the use of a Compost Activator (see listing of ten kinds above), fine, dark humus can be produced in a few weeks' time inside a compost bin or cabinet. There is no offensive odor and no attention is required.

EARP ZYMOTHERMIC CELL COMPOSTER. *Model 50*: For home garden use. A cylindrical can with baffles on inside to speed growth of aerobic bacteria. Capacity 100 lb. per mo. *Model 100*: Square wooden container with baffles on all sides. Capacity 300 lb. per mo. Larger sizes also available. Earp Laboratories, Hampton, N. J.

GARDEN MAGIC COMPOST CABINET. 56" high, 29" wide, 37½ in. deep, holding 14½ cubic ft. of material. Drawer at bottom for removing compost. (Larger size also available.) Benson-Maclean, Bridgeton, Ind.

KESTON-LEHIGH COMPOST BINS. 1 & 2 tons capacity; 40x40x38¼ in. and 40x77½x38¼ in. shpg. wgt. 90 & 130 lbs. Made of N. J. rot-resisting cedar with metal rods; shipped knocked down, compost made easily avail. from bottom by pulling rods. Avail. from Keston Organic Products Co., Haddon Hgts., N. J.

COMPOST GRINDERS

These shredding machines are widely varied in style, ranging from simple hand grinders to models with 6 HP motors. Compost which is ground will decompose in about one-tenth the time required when it is left rough.

HADDON HAND SHREDDER. A metal and wood grinder run by hand; will cut long plant stalks, straw, hay, etc., into 3-in. lengths or less, for composting. Shpg. wgt. 50 lbs.; shipped knocked down; 31x 31x approx. 12 in. standing. Avail. from Keston Organic Products Co., P. O. Box 87-FG, Haddon Hgts., N. J.

HADDON ORGANIC SHREDDER. 3 models: power take-off, GE electric motor, Briggs-Stratton gasoline engine. A portable, rubber-tired metal machine with retractable handles and adjustable feed board for shredding dry or damp materials. Shipping wgt. approx. 200 lbs. Avail. from Keston Organic Products Co., P. O. Box 87-FG, Haddon Hgts., N. J.

KEMP POWER SOIL SHREDDER. Teeth of tempered steel, adjustable for coarse or fine shredding. Gasoline or electric motor. Peat shredder, shaker screen, and other attachments including rubber-tired wheels available. Five sizes. *Models 1 & 2*: 4-wheeled cart-frame mount; 6-20 cu. yd. capacity per hr.; shpg. wts. 600 and 1,000 lb. *Models 6 & 8*: 2-wheeled mount; 2-6 cu. yd. capacity per hr. with 1-3 men loading hopper; shpg. wts. 200 and 300 lb. *Model SKO*: 2-wheeled mount, 2 handles, ¾ HP electric motor or 1½ HP gasoline engine; shpg. wt. 150 lb. Kemp Mfg. Co., 1027 E. 20th St., Erie, Pa.

LINDIG SOIL SHREDDER. Model JR.-B: Free-swinging shredding blades of alloy steel, 15 on three 7-in. rotors, plus 4 stationary. ⅓ or ½ HP elec. motor or gas. engine. 2 rubber-tired wheels. Feeding hopper 15x15 in. across top. Capacity 3 cu. yd. per hr. 110 lb. with motor. *Model B*: ¾ or 1 HP elec. motor or 1½ HP gas. engine. Four styles with 19-39 blades on rotors 8½ or 10½ in. wide. 155-180 lb. Screeners available. *Model 24*: Heavy-duty type, 4 pneumatic-tired wheels. Capacity up to 35 cu. yd. per hr. with 2 or 3 men loading. Lindig Mfg. Co., 1875 W. Larpenteur Ave., St. Paul, Minn.

MECO HEAVY DUTY SHREDDER. 74 knives running at 1600 RPM. 1-2 HP motor. Angle-iron stand, 4 wheels. Mac Engineering Co., Lewisburg, Pa.

MECO MULCH CUTTER. One 2-sided cutter blade, easily sharpened. Will take long heavy stalks and hedge clippings. Chute for guiding material. ⅓ HP motor. 4-legged angle-iron stand, sheet metal cover. Mac Engineering Co., Lewisburg, Pa.

MECO SHREDDER. Metal cutting disc with 9 knives operated by ½ HP motor. Angle-iron stand with 2 rubber-tired wheels. Hopper 18 in. high. Shreds leaves and other garden wastes fine enough to use immediately as mulch or, with a starter, in 3 wk. as compost. Mac Engineering Co., Lewisburg, Pa.

W-W GRINDER. New 2-wheel model, pneumatic tires, one-piece tubular handle bar. Multiple rollers, perforated screens, speed control for adjusting for texture. Used with 1 HP electric motor or 1½ HP gasoline engine, or can be powered from tractor. Heavy-duty model, 5 or 6 HP, with double hopper also available. W-W Grinder Corp., 2057 N. Market St., Wichita, Kan.

• NOTICE. Next month FLOWER GROWER will publish another complete directory on lawn equipment. In it will be listed hand and power mowers, fertilizer spreaders, rollers, spikers, tampers and all other materials for lawn maintenance.

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SPRING PLANTING

PEONIES DAYLILIES

WILD NURSERIES ARE READY TO SHIP YOU DAYLILIES AND PEONIES WHICH WHEN PLANTED THIS SPRING WILL FLOWER FOR YOU THIS SUMMER!

Hundreds of our Flower Grower customers who ordered last year report that practically all of what they planted gave them profuse blooming within a few months.

DAYLILIES

To plant these first-year-blooming daylilies, just tell us what week in March or April you want delivery and we'll dig them out of our warm Ozark soil and you will get them on time. It's just like transplanting in your own garden!

PEONIES

Wild Nurseries has found a way here in the Ozarks of digging peony plants in the fall, storing them in a dormant condition—so that in the spring you will receive plants that will bloom profusely for you the first year!

All of these peony plants that we stored last fall are large three to five eye divisions—blooming size. And all of these plants will produce strong, healthy stems and will bloom this summer. **THERE IS A LIMITED NUMBER OF THESE AVAILABLE—NO MORE THAN WHAT WE STORED DURING THE WINTER! Order the collections that you want right now!**

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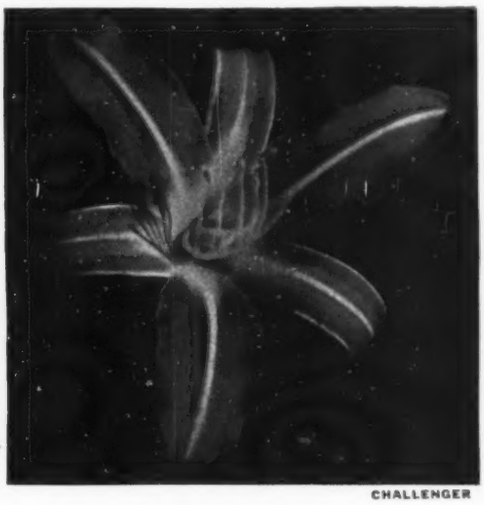
AMERICA'S FLOWER OF THE FUTURE

That's the daylily (Hemerocallis)! Never before have daylilies been so popular. They bloom for weeks—a truly beautiful garden display of form and color. Order several collections today.



CHALLENGER

DAYLILY COLLECTIONS

Introductory Hemerocallis Special

12 varieties of daylilies, unlabeled, prepaid in U. S. A. for $3.00. Beautiful colors and glorious bloom for a very low price. Be sure to order this one if you have very few daylilies in your garden.

★"STAR DUST"★ DAYLILY SPECIAL

ALLURE, light canary self,
BARONET, Crimson-orange,
CALYPSO, clear lemon yellow,
CINDERELLA, red & yellow bicolor,
GARDEN CHARM, huge, golden yellow,
GLORIA, medium sized orange flowers,
PATRICIA, large pale yellow
PRIDE OF HOUSTON, mahogany red,
RAJAH, English red; dark-eye zone,
SCEPTRE, large jonquil yellow
SKYLARK, lemon flowers with green throats,
SOUDAN, medium-large, empire yellow.

These 12 daylilies remaining in good bloom and coming into bloom in the evenings (catalog value $8.10) prepaid in U. S. A. for..... $5.00

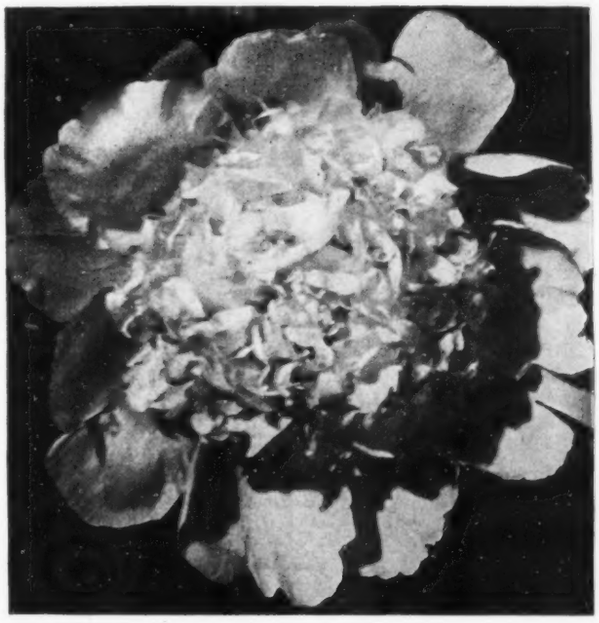
OZARK BEAUTIES ★SPECIAL★

AUGUSTA, late; fine yellow.
AUGUST PIONEER, lcte; chrome yellow.
BABY TEARS, early; gold marked rosy-red.
BARONET, early midseason; crimson-orange.
BOUTONNIERE, late midseason; yellow-peach blend.
CABALLERO, midseason; rose-yellow bi-color.
COMET, late midseason; rose-salmon & lemon bicolor.
DUMORTIERI, early; orange shaded brown.
FLORHAM, early; soft yellow.
GEO. YELD, Midseason; yellow brushed red.
GOLIATH, midseason; deep yellow.
HARVEST MOON, early; reblooming; clear orange.
HYPERION, midseason; lemon yellow.
IMPERATOR, late midseason; orange-red.
LADY ESTHER, late midseason; large, lemon yellow.
MINOR, early; pure yellow.
SPITFIRE, early, reblooming; fiery red.
SUNNY WEST, late; immense soft canary yellow.

Above 18 plants (catalog value $9.25) prepaid in U. S. A. for.. $6.00

MAIL COUPON TODAY !!!

J. C. LEGG



FRAGRANT DAYLILIES FOR YOUR GARDEN

AUGUSTA, fine yellow, late blooming,
BAGDAD, coppery red, midseason,
HYPERION, lemon yellow, large flowers,
MIDDENDORFII, orange-yellow, early,
MIKADO, rich orange, deep red eye-zone,
PATRICIA, large pale yellow, midseason,
SOUDAN, medium-large empire yellow,
SUNNY WEST, immense soft canary yellow.

Above 8 daylilies (catalog value $4.00) prepaid in U. S. A for..... $3.00

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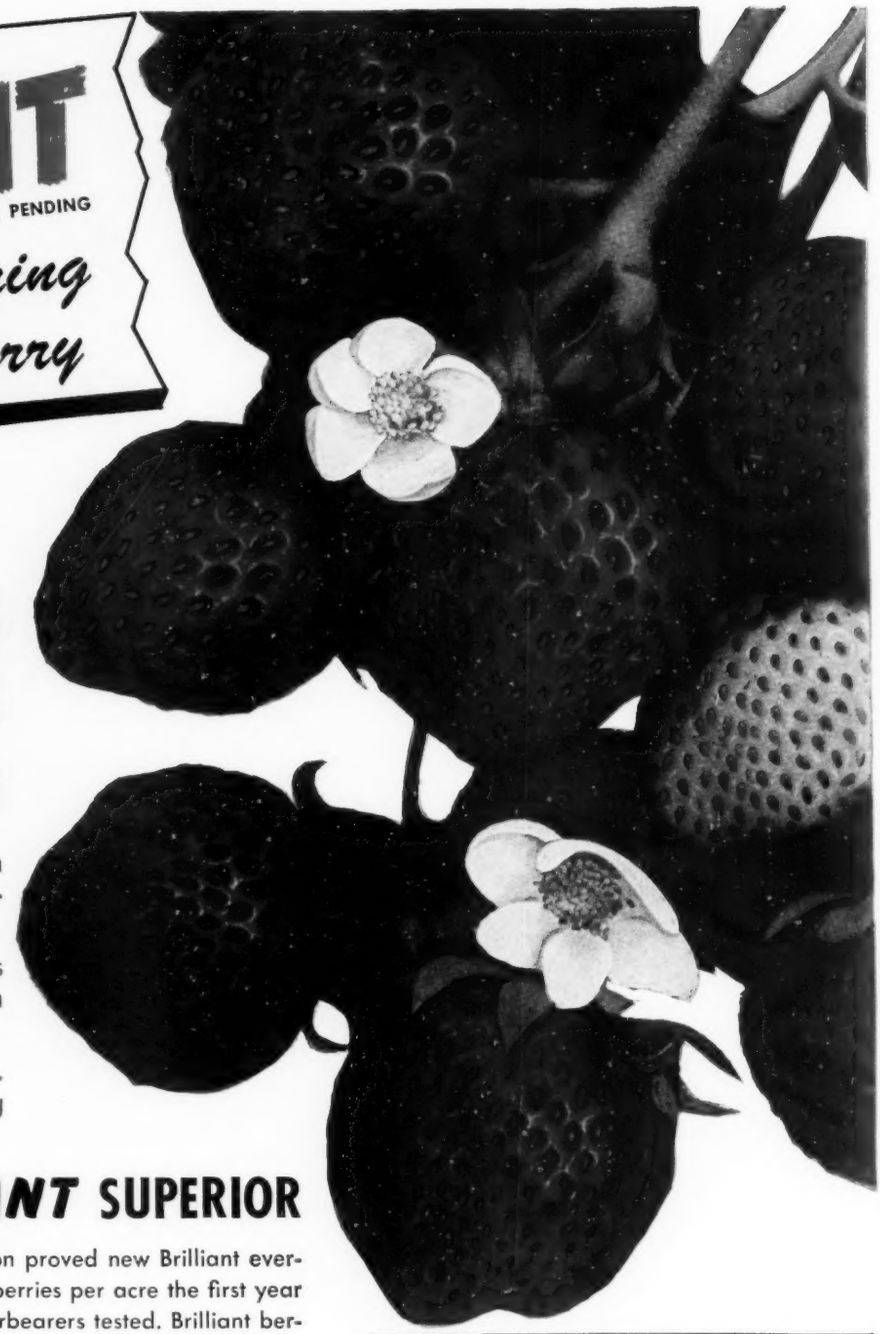

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- Super bearing — A few plants in a small space will bear loads of delicious berries.
- Bears continuously — Produces large, juicy berries every day from June to frost.
- Best freezer — keeps its flavor. Tastes as fresh picked after freezing as before.

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Tests by an impartial State experimental station proved new Brilliant everbearing strawberries produce 7,000 quarts of berries per acre the first year —2,000 quarts more than any of the other everbearers tested. Brilliant berries are large, with a very fine flavor. They are unexcelled for delicious shortcakes and jam. 10 Brilliant plants will give you enough berries for 30 jars of tasty strawberry jam. The berries are a bright red color clear through. Brilliant plants are very prolific. For fresh strawberries in your garden every day, this summer, order some Brilliant everbearing strawberry plants today.

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A glimpse at

The Garden Clubs

By MARGET COCHRANE COLE

"A WEEK OF BEAUTY" is the theme for New York State's exhibition at the International Flower Show, which will be held from March 8 through 14 at Grand Central Palace, New York. Mrs. H. L. Heineman of Garden City is the garden club chairman of the exhibition.

As part of this theme, a "dry" garden for a sunny location and low water maintenance will be designed and executed by Mrs. William Whitney of Garden City. A shady garden will be planted by Mrs. Robert Wylde also of Garden City. The general architectural plan will be executed by Mrs. C. Turner Richardson of Douglaston, Long Island, and will feature a Bermuda garden style.

Other exhibits include a child's playhouse, which will provide the setting for junior exhibits. Dining trays for all hours of the day will be exhibited in competition and the various garden club districts of the state will present conservation projects done in miniature scale. Garden clubs from neighboring states will exhibit some specific "favorite" each day such as favorite container, favorite flower, favorite place, etc.

The Horticultural Society of New York plans to feature dining tables. On Sunday and Monday evenings they will provide conducted tours of the show and, at 8:30 P.M., they will present a program in the Press-Lecture room called "Meet the Experts," designed so various people connected with the show may meet members.

The popularity of interpretive subjects for flower show exhibits is increasing throughout the country. The Garden Department of the Woman's Club in Mt. Lebanon, Pa., presented interpretations of the moods and ideas conveyed by various composers. Such works as Debussy's "Golliwog Cakewalk" and "Isle of Joy" were represented. The first was interpreted in modern angular design, the second one in a style reminiscent of Paul Gauguin's paintings. As contrast, Beethoven's "Moonlight Sonata" and MacDowell's "To a Waterlily" were also interpreted. Color as well as form provided the most fascinating clues in these arrangements. Mrs. H. J. Garvey was chairman.

The Tennessee Federation publishes a quarterly magazine which immediately catches one's attention with its interesting covers carrying beautiful views of the state against a clear color mat. The book is approximately 8 × 11 inches which provides space for excellent large illustrations throughout. Anyone would be attracted to the opening article in each issue. These have titles such as "Our Heritage of Old Stone Bridges," "Great Smokies Known as 'Cradle of Vegetation'" and "The Horseshoe Properties." Each article is illustrated by magnificent natural scenes. Tennessee's "Volunteer Gardener" creates wide interest in their beautification plan, their preservation of antiquities, and their highland cabin-home "porch garden," as well as club projects. Mrs. Albert Ganier of Nashville is its editor.

A newly formed garden club in Southbridge, Mass. under the leadership of Mrs. Stephenette Berthiaume has our best wishes.▶

Flower Grower

Garden Club Forum

Conducted by VICTOR H. RIES

EXTENSION FLORICULTURIST, OHIO STATE UNIVERSITY, COLUMBUS, OHIO

SINCE many garden clubs like eats with their meetings, why not do it in the good old-fashioned way. Have a campfire picnic! Give each person a long stick and a hot dog and let him cook his own. Then, to see if members have been boy scouts, give each a roasting ear with the husks removed. Just in case they haven't been scouts, you can tell them to place the ear on a long stick and toast over the coals, taking care not to scorch. This is real eating!

But even better than roasted corn is roasted, or broiled, chicken. Simply take a section of frying chicken, wrap in a strip of bacon and roast over the fire.

Plant Exchange

I find the important thing in running plant exchanges is to use the system of the Chinese laundryman—"No tickee, no washee." To control those folks who bring nothing but want a lot, give exchange tickets for plants brought in. Those who bring nothing can buy what's left over.

A method used by some groups, which in some ways is even better, is to set a small price on each plant; it may vary from 5 to 25 cents, depending on the value. The members donate them to the club and the club gets the proceeds for its treasury. Still other clubs have some of their better gardeners grow extra plants or save their gladiolus bulblets or extra iris or dahlias for use in the exchange.

There is a problem where you have a sale. Your state Department of Nursery Inspection can stop the sale of any hardy outdoor plants.

It's an idea!

Why not have each member make a list of what he's going to do garden-wise during the next month and give it to the calendar chairmen, who will then compile an over-all report. This should make interesting reading at the first April meeting. And, incidentally, it will probably be *much* fuller and more impressive than would be a month-end report of work actually done! A gardener making plans is something like a kid loading up his tray in a fancy cafeteria.

Notice

● Garden club officers interested in increasing the income of their clubs are invited to write to Circulation Department, Dept. GC, FLOWER GROWER, Albany 1, New York.

Cincinnati's Been *Busy*

These recent accomplishments of clubs in the Cincinnati Federation are listed with the thought that they may inspire similar projects on the part of other garden clubs.

1. Distributed 230 potted plants, as well as handmade corsages, to patients at County Home.
2. Planted two flower beds at Veterans' Hospital.
3. Planted 600 daffodil bulbs in Village Center woods.
4. Restored and beautified old cemetery.
5. Paid tuition of public school teachers to conservation laboratory.
6. Conducted a wild flower conservation program in local schools.
7. Included a "small fry" section in flower show.
8. Gave garden books and magazine subscriptions to local library.
9. Provided regular flower arrangements for local library.▶

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BY THE CREATOR OF

☆ PEACE ☆

Francis Meilland, world renowned for his creation of Peace, has produced two more fine new Roses! See them in bloom in your garden this June!

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CONFIDENCE, a peach-toned pastel blend; big, fragrant, with blooms to 6". It has already won Bagatelle and "Most Beautiful Rose of France" awards.
$2 ea., 3 for $5.25 ppd.

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EDEN, a clear medium pink, outstandingly fragrant, with great vigor. (Gold Medal of National Rose Society of England — Silver Medal of Int. Test Garden, Geneva.)
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SEE OUR FREE CATALOG . . .

It shows these and other great roses, many in full color, including All-Americas PEACE and CHRYSLER IMPERIAL; perennials, big value offers.

WRITE TODAY TO . . .

Star ☆ Roses

THE CONARD-PYLE CO.

56th Year **West Grove 402-A, Pa.**

Picture Window

[FROM PAGE 50] erty line planting, suitable evergreens are upright Japanese yew (Taxus cuspidata capitata), hemlock (Tsuga canadensis) and American aborvitae (Thuja occidentalis). If only partial screening in winter is required, a deciduous hedge such as Amur privet (Ligustrum amurense), Chinese lilac (Syringa chinensis) or tatarian honeysuckle (Lonicera tatarica) is sufficient. This type of planting is often placed along roadsides to screen the view both ways.

If the house with a front or side picture window is several feet above street level, seclusion is obtained more easily. In such situations the front lawn is generally graded level from the house for 15 feet or so with the balance more steeply sloping. To provide complete privacy from the street and yet not obstruct the distant view, plant a 2 to 2½-foot hedge at the edge of the level section. (Figure 4)

Regardless of which side of the house the picture window is on, there's one type of treatment — namely an open, lacy, foliage effect close by the window— which contributes privacy and a pretty pattern of a picture. A small, carefully pruned dogwood tree placed directly opposite one side of the window and 6 to 8 feet from it is one type of planting which will achieve this effect. (Figure 1) A vine planting is another. Place a widely spaced wire framework over all or just a portion of the picture window, 1 to 1½ feet out from it, and train a deciduous vine, such as clematis, to grow into an intriguing pattern on the wire. Only a light tracery of foliage is necessary. When the vine is in flower, the view from the room will be an attractive floral picture. (Figure 3) In both instances, the view from the outside in is screened much more effectively than the view from the inside out.

If you are building a new home with one or more picture windows, plan carefully where they will go. The location and character of the building site should dictate their placement. If your house is to be in a built-up area and near to and at about the same level as the street, better think twice before placing a picture window in a front wall. But then, of

Rose Movie

• Here's news for program chairmen. A full color movie, "The Gift of a Rose," will soon be ready for local showings across the country. There is no charge for the film itself; you simply pay the return postage. If your club would like to view this movie, write Roses Incorporated, 60 East 42nd Street, New York 17, New York.

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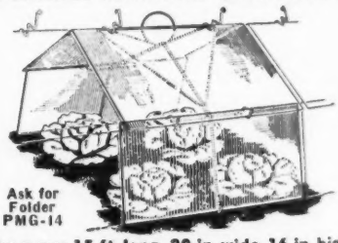

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Box 188-F **Salem, Mass.**

Flower Grower Contest Deadline

• Garden club publications to be entered in the FLOWER GROWER contest, announced last month on page 20, must be submitted by March 15. This contest, which is open to State Federation and individual member garden clubs, is sponsored by FLOWER GROWER Magazine in cooperation with the National Council of State Garden Clubs. Newsletters, small and larger magazines, yearbooks and special individual garden club publications are eligible, according to the details given in the February FLOWER GROWER. Entries should be sent to National Contest Awards, FLOWER GROWER MAGAZINE, 2049 Grand Central Terminal, New York 17, New York.

course, there are always differences of opinion as to what constitutes a good view. Some folks like a street or road view. But even if this is the case, there's still another factor to be considered. Remember that passers-by will have the same opportunity to see you and the contents of your living room as you have to see them. This view opportunity is most nearly equal when the house is close to the street and on the same level. If the house is below street level, passers-by have the edge! In the latter case, small high windows on the front wall are the best answer.

The nearness of your neighbor's house governs the advisability of placing a large window in a side wall. A nearby structure cuts off the distant view and decreases privacy. And even though there's a vacant lot or open country to the side now, you have no assurance that someday a home won't be built there. It's wise to plan as though a house were located there now.

Actually, the rear wall of the house is probably the safest place for a picture window in built-up areas. Usually there's ample space in the back lawn to plant a picture and screen the public's view into the house. (Figure 2)

If your house site is in the country and a considerable distance from and above the highway or road, a large window may go on any side—ideally the one offering the most interesting view. If the best picture happens to be at the front, a big window there admits a view without exposing the interior to the public eye. The view advantage increases proportionately with the distance of the house from the road and the height of the house above it.

Whether you're working with picture windows you already have or with those you plan to have, give as much thought to the pictures you will see through them as you do to the paintings you hang on your walls, for they can afford you equally rich and soul-satisfying enjoyment.▶

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5 Different Garden Chrysanthemums including Golden Carpet.....$1.00
5 Giant Florists Chrysanthemums including Mrs. Kidder $2.50
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T. H. EVERETT

In the perennial border, Echinops carlinoides' prickly lavender-blue blooms perch atop green thistle-like foliage.

Rock garden at Royal Horticultural Society gardens, Wisley, Surrey, whence came many of the perennials herein described.

Plant-scouting in the British Isles

by T. H. EVERETT
HORTICULTURIST, NEW YORK BOTANICAL GARDEN

A GOODLY number of excellent perennials were among the some 900 plants I "unearthed" last summer in my search of British gardens and packed off for a trans-Atlantic crossing and subsequent introduction into American gardens. My three months of prospecting abroad for plants likely to prove useful here was largely in behalf of the Garden Club of America and the New York Botanical Garden.

These perennials (which this second article will describe), as well as the other plants obtained, came mainly from the great public gardens and nurseries. These I found more profitable hunting grounds on the whole than private estate gardens. For the latter's once-fine herbaceous plantings and greenhouse collections have been all but eliminated by modern-day maintenance costs. Perhaps the finest of the public gardens are the 400-acre plantings of the Royal Horticultural Society at Wisley in Surrey, which furnished some of these perennials. A horticulturist's paradise, Wisley boasts in addition to an extensive collection of perennials equally outstanding collections of trees, shrubs, annuals, rock garden plants and a fair company of greenhouse plants. Most impressive is the superb standard of maintenance and high cultural skill everywhere evidenced—a tribute to the brilliant hard-working director, Dr. H. R. Fletcher, and his capable staff. The general excellence of Wisley is also a reflection of the British people's deep love of gardens, for the Royal Horticultural Society is a private membership organization. Today, boasting some 50,000 members despite the doubling of dues since the war, it is surely the most successful horticultural society in the world.

But let's get down now to the real business at hand of plant descriptions. Among the many perennials I brought back, the following seem particularly noteworthy. Some of these are of unquestioned hardiness. Others are adaptable outdoors only in milder sections—elsewhere for wintering indoors and setting out in summer.

CAMPANULA HAYLOGENSIS FLORE PLENA is too long a name for a plant so deserving of popularity. Appropriate common names for this variety, in my opinion, would be the blue-rose bellflower or campanula blue roses. I suggest these

Second of a series of articles reporting on Mr. Everett's recent plant-prospecting trip abroad. The first article appeared in the January magazine. The third and final installment will appear in April.

Inside view of Wisley's excellent half-hardy plant house. Some of the finest plant collections in all of Great Britain are to be found at this famous 400-acre public garden.

The superb maintenance standards at Wisley are evident in this picture of the plantings fronting the glasshouses. In big laboratory at back, extensive trials of vegetables and flowers are conducted.

N. K. GOULD PHOTOS

because the 3-inch china blue flowers delightfully resemble small upturned flat-topped cabbage roses. Borne in great profusion, they form showers of bloom which hide ground-hugging tufts of foliage. Although first raised some 70 years ago in Scotland, Campanula haylogensis is still rare in British gardens, and its double-flowered form, flore plena, is still rarer. The parents of this hybrid are Campanaula carpatica and C. cochlearifolia, both of which are very easy to grow here. I have every expectation that their offspring will flourish equally well, proving a splendid plant for rock gardens, wall gardens and border fronts.

ECHINOPS CARLINOIDES is a handsome globe-thistle well suited for the perennial border. Of bushy habit, it is well furnished with deep green thistle-like foliage which is deeply cut. Displayed to advantage above the foliage are fine spherical flower heads of lavender-blue, measuring to 2½ inches across. The plant attains a height of about 5 feet, standing well with little or no staking.

POTENTILLA HYBRIDS of the argyrophylla are now extremely rare in gardens, although many were raised more than 100 years ago and were then very popular. Gold Kugel, Gloire de Nancy, Buryensis and Maena-

T. H. EVERETT

Frothing with pink blooms in summer and fall, Polygonum campanulatum should prove a fine addition to our perennials.

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biana, all hybrid offspring of Potentilla argyrophylla, are particularly handsome. They have fine silky foliage and attractive rich-hued single or double flowers 1½ to 2 inches across. The blooms are borne freely over an extended season in summer and fall. Golden Kugel has double golden flowers which deepen in color to the center. Gloire de Nancy has semi-double blooms with crimson-scarlet petals tipped with gold. The flowers of Buryensis are rich orange deepening to the center. Macnabiana is a red and yellow single-flowered form. These three plants are all about 2 feet tall.

STACHYS OFFICINALIS ALBA, a dwarf form of the wood betony with pure white blooms, is altogether more refined than the commoner reddish purple-flowered type. It makes a neat groundcover, its rich green, somewhat glossy foliage forming a mat 2 to 3 inches high. Some 4 inches above this rise the tight flower heads, borne for a long season in late summer. This plant is also excellent for the rock garden.

SALVIA MRS. HOBBS is a handsomely variegated form of common sage which should be welcomed by herb gardeners. It is an even better-looking plant than the tricolor variety which I also brought back. The name Mrs. Hobbs is applied to this plant only because the old gentleman who gave it to me said that he received it many years ago from a Mrs. Hobbs and has known it ever since by that name. I found no one in England who could further identify it.

SEDUM MAXIMUM PURPUREUM is an old-time favorite now rarely found in gardens. A variable plant, it exists in both good and poor forms. The one I was fortunate enough to secure is excellent. It grows as easily as Sedum spectabile and like it blooms in fall. But unlike S. spectabile, it has rich maroon-purple stems and leaves which are handsome throughout the entire season. Its leaves also are fleshier than S. spectabile. A bushy plant, it is about 2½ feet tall when in bloom, its broad-headed flowers being of a pinkish color (brownish in bud). Both in and out of bloom, the plant combines well with other pink flowers and also yellow ones. It should lend itself to cutting and use in distinctive flower arrangements, especially those in copper containers.

CHRYSANTHEMUM ARGENTEUM is the correct name of an exceedingly attractive gray-leaved shrub which I found growing under the name Tanacetum argenteum. Because tanacetum is the botanical name of the herb tansy, it occurred to me that the little plant might be aromatic. It most decidedly is. When the leaves are slightly bruised, they emit a most pleasing fragrance. I am certain that this charming plant will interest herb gardeners. Covered with finely divided foliage of a rich French gray, it forms an exquisite tight bushlet 9 inches tall and twice as wide.

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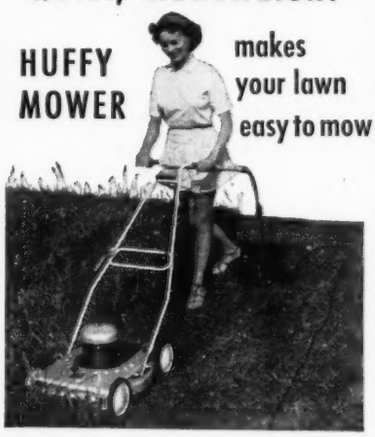

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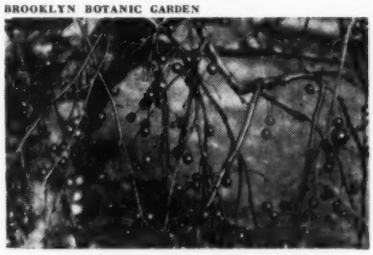
It is undoubtedly a plant for full sun and well-drained soils, but may not be hardy in colder sections.

PELARGONIUM KEWENSE, one of several fine geraniums I thought worthy of bringing back, is a charming kind. It is extremely free-flowering and much less gross and obese than so many of the red geraniums we grow. Its bright scarlet-crimson single flowers are of irregular outline with well-spaced petals—altogether daintier than the uniform, nearly circular flowers of most of our geraniums. This species was first described in 1934 by Sir Arthur Hill, then director of the Royal Botanic Gardens, Kew, and was illustrated in color at that time in the Journal of the Royal Horticultural Society.

POLYGONUM CAMPANULATUM is a grand member of a genus which unfortunately includes a number of pernicious weeds. It is spectacular in bloom, fairly frothing with great masses of small pale pink flowers in late summer and fall. Its neat, equally attractive foliage is often blotched with purple along the mid-veins. Of bushy growth, this knotweed attains a height of 2½ to 3 feet. Planted in great masses, it makes a good cover beneath trees and also may be used in beds and the perennial border. It received an Award of Merit from the Royal Horticultural Society as long ago as 1920.▶

BROOKLYN BOTANIC GARDEN



Red Jade—
A New Crabapple

• A hardy crabapple with slender weeping branches bejeweled in fall with small red fruits is being offered by the Brooklyn Botanic Garden. Named Red Jade, this distinctive tree loses its foliage in early fall, leaving the red fruits to brighten an otherwise colorless garden without the competition of its own lingering leaves. In spring the tree is covered with white blossoms.

The magnificent Red Jade parent was selected as a seedling 18 years ago by Dr. George M. Reed of the Garden's staff. It is now 13 feet high with a spread of 14 feet. The 1,000 three-year-old offspring being offered to plant connoisseurs are from 3 to 3½ feet high and have already fruited and shown the weeping habit.

If you would like a young Red Jade specimen, write The Woman's Auxiliary of the Brooklyn Botanic Garden, which is establishing a fund for further plant breeding and horticultural work. The address is 1000 Washington Avenue, Brooklyn 25, New York.

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Your garden is not complete without DAHLIAS and CHRYSANTHEMUMS. See our ad in February issue for Chrysanthemums. The dahlia collections offered below are all free blooming, easy to grow varieties, and fine for cutting.

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JUBILANT—Min. Informal Decorative, Lovely cherry red
LITTLE DAVID—Pom, Orange red
Above COLLECTION (Value $4.75) ROOTS $3.50

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RALEIGH—Early deep rose shaded salmon
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COLLECTION G SIX GRAND DAHLIAS
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FIVE STAR GENERAL—Formal, Light blend, pink shaded yellow
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RAY SMITH—Semi-Cactus, Unusual and lovely lavender
SALEM SUNSHINE—Informal Decorative, Outstanding yellow
SILVER TIPS—Semi-Cactus, Cherry red with yellow reverse
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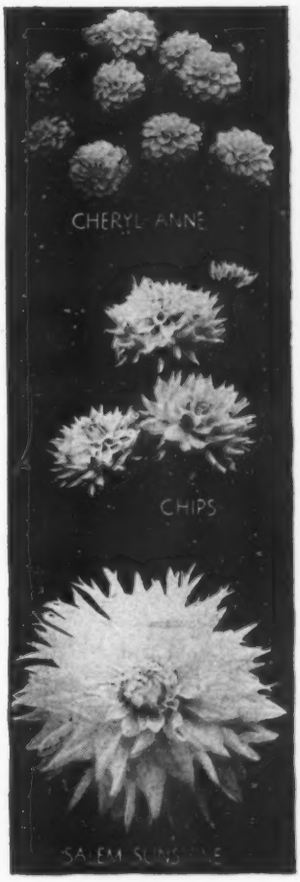

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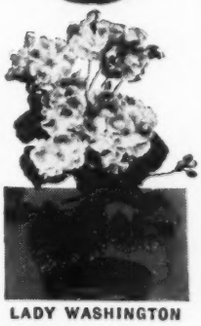

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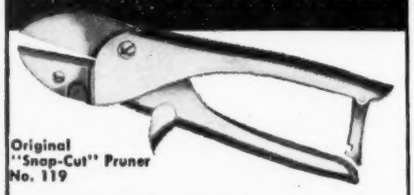

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Cascade Mums

[FROM PAGE 59] to insure a long cascade by flowering time. The regulation method is one plant to each pot. When it has reached a height of about 6 inches it should be pinched back. Of the lateral growths that result from the pinching, three are selected to develop the plant and the others removed. The middle lateral, or cane, is permitted to grow as fast as it wants, as the leader, but the other two and the sub-laterals that develop later are pinched back repeatedly after three or four leaves appear. This means pinching about every couple of weeks until around September 10.

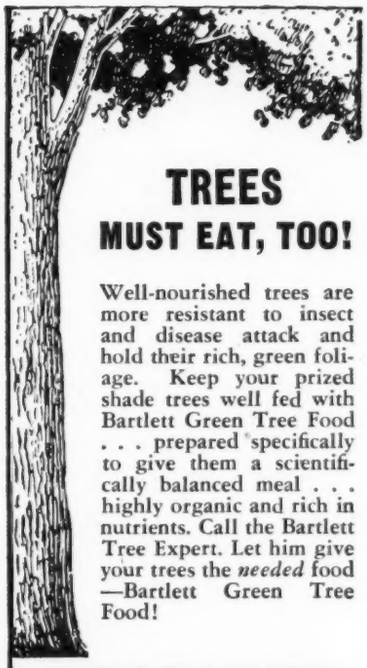
When the leader is approximately a foot tall, a piece of No. 10 wire, about 4½ feet long, is inserted into the pot near the base of the plant. About 4 or 5 inches above the top of the container, bend the wire over at a 45° angle, then gently pull the leader down and tie it to the wire with raffia or some similar soft material.

In order to make the plant grow evenly, the pot should be placed so that the wire support points to the north. This exposes the whole plant to the same degree of sunlight. A healthy and vigorous plant will grow rapidly enough so that new growth will need fastening to the wire support about every ten days or two weeks to keep it from taking an upright position.

As the plant grows, the wire is gradually lowered so that it will be horizontal with the top of the container by late August or early September—and still pointing north. Bending the wire to a horizontal position encourages side growth considerably, which, of course, means more blooms. By October 1 (for the average variety), the support is taken out so the canes will hang straight down. Then the plant is turned right around to face the south.

It's easy to see that cascade mums can be trained in a great variety of shapes—rectangular, oval, heart-shaped, triangular and others. With small lattice trellises in the place of the wire support, new forms are simple to develop—there are all kinds of possibilities.

My "Good-Woman-Friday" deviated from the regular course in growing some Annas and Jane Hartes last season. Instead of the customary one plant, she put three chrysanthemums in each container, then treated the middle one as a leader and the others as laterals. The leader plant was left unpinched, but those on the sides were given the regular treatment. Since the three plants would naturally make rather heavy growth, she used three wires for support instead of one. The wires were fastened to a piece of poultry netting 12 x 50 inches. The side plants were trained along the edges of the



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netting with the middle plant left to fill in between them.

In most cases the supports can be removed after the plants are dropped down in vertical position. But if they are needed to retain the proper shape of the plant, then of course the supports should stay in place. The late afternoon, when the plants are more flexible, is the best time to lower and tie the canes, since there is less danger of breaking them then. It is disconcerting, to say the least, to break off a plant after a full season's effort to get it trained just right.

Much of the success of the planting depends on getting maximum growth. Therefore, feed and water the plants regularly. The new liquid plant foods are excellent when used just as the manufacturer prescribes.

Buds at the extreme tip of the plant have a natural tendency to open up first, but this can be discouraged. The regular pinching is discontinued about September 1. Then, about a week later, only the base one-third of the plant (or that section nearest the pot) is pinched. At the end of another week the middle part gets the same treatment, and a week later still the top part is pinched. Under this regime the entire plant will be covered all at once with a cascade of flowers.▶

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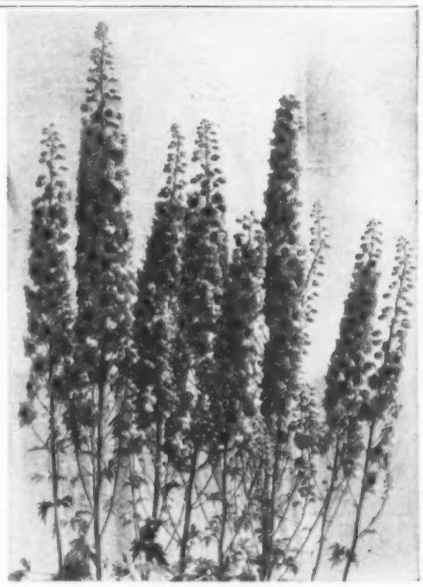

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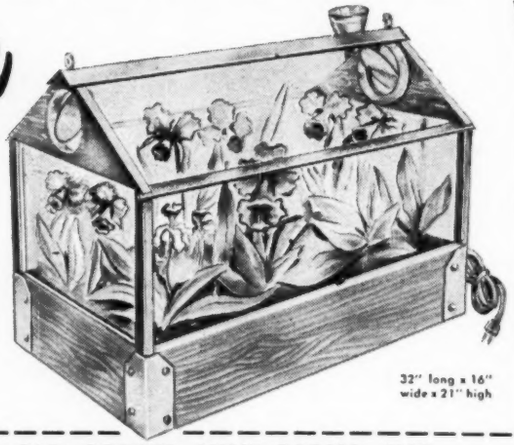

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Waterlilies

[From page 55] wers—up to eight inches across—in glowing garnet with mahogany stamens tipped yellow, while the latter sports myriads of bright vermilion blooms.

Tops among the deep pink waterlilies is James Bryden. A free-blooming, compact plant, it has medium-sized, lush amaranth rose flowers which float on the water's surface. The outstanding Rose Arey has large stellate flowers with slightly incurved petals, and almost as popular is Pink Opal, whose coral blossoms are valuable for cutting. In a delicate apricot shade, the charming Paul Hariot is small enough to grow in a tub. The numerous flowers open a rich apricot yellow, changing to orange pink and ending in coppery bronze red—a sunset range of colors on successive days. The strong-growing Gonnere with many glistening petals is perhaps the best of the whites.

To continue in superlatives, the hardiest of the pygmy waterlilies and probably the smallest-flowered species in the entire waterlily group is Nymphaea tetragona. In the St. Louis area it is the only dwarf lily that is completely hardy. We have grown it in tubs where ice formed 6 inches thick. The dainty white flowers, no bigger than a quarter, are produced freely and self-sown seeds germinate readily in the tub. It even fits an aquarium. Two other excellent pygmies for tub culture are Yellow pygmy (known botanically as N. tetragona var. helvola) and the pink Joanne Pring. Both have flowers somewhat larger than those of N. tetragona, but the plants do need protection in winter. We move them indoors before heavy frosts. Joanne Pring is a pink sport of Yellow Pygmy, with leaves 2 to 3 inches across and flowers as much as 2½ inches broad.

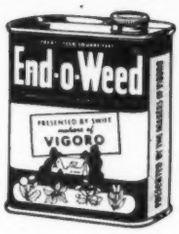
Although the hardy waterlilies have their merits we feel that the tropicals, with their haunting fragrance and assortment of exquisite colors, impart a more exotic touch to the water garden. An unbroken succession of flowers is held erect above the water through the summer and well into the autumn. Several varieties open in the dark of night and remain unfolded until the day-blooming types take over. The ones we consider the exceptional in day and night-flowering hybrids were developed at the world-famous Missouri Botanical Garden.

Probably the finest of the really white day-bloomers, Mrs. George H. Pring, was introduced in 1922. But Isabelle Pring has even more petals, which give the flower a fuller, rounder appearance, and it is strongly viviparous. Among the yellows, the favorite St. Louis with large, fragrant flowers made horticultural history in 1932 as the first yellow tropical hybrid of importance. Sunbeam, another viviparous lily, is a close rival, with

keep your lawn weed-free with

End-o-Weed

SO EASY AND QUICK. JUST MIX WITH WATER AND SPRINKLE IT ON.



Dandelions and other unsightly weeds needn't mar the beauty of any lawn this year. With End-o-Weed, improved 2,4-D weed killer, you can actually spray them away.

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End-o-Weed destroys more than 100 different kinds of lawn weeds without harm to ordinary grass. Kills leaves, stems, and roots. Get End-o-Weed from the dealer who sells you Vigoro.

End plant and lawn pests, too!

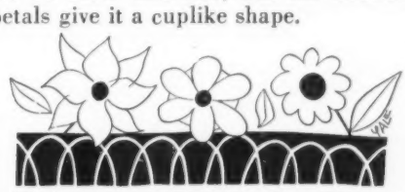
End-o-Pest—All purpose dust—provides the pest protection every garden needs.

End-o-Pest ARC—Kills ants, roaches, chiggers and many other lawn pests.

slightly deeper-colored blossoms.

An old standby in the pink group, General Pershing is a "must" on the tropical waterlily list. It was introduced in 1917. An abundance of full-petaled flowers against a background of dark green foliage, spotted and marbled with purple, merits its continued popularity. Persian Lilac, with semidouble pink lilac blossoms, is a choice plant, too. And unusually shaped blooms that are almost red, a rare color in tropical day-bloomers, make American Beauty outstanding. In true blue, Henry Shaw is excellent for small ponds, since it is a moderate size and blooms freely. The handsome flowers of Bob Trickett are much lighter, with wide, spreading petals.

In the deep purple shades Midnight, Director George T. Moore and Judge Hitchcock reign supreme. The first bears a moderately dark violet, double flower with a rosette of dark petaloid stamens in the center which look like a flower within a flower. The deep purple blossoms of Director George T. Moore have pointed, open petals and golden centers, while Judge Hitchcock is similar in color and size, but the rounded petals give it a cuplike shape.



Without any question, Missouri is the finest white among the night-bloomers. A sturdy grower that needs room for full development, it bears flowers fourteen inches across with three or four rows of broad petals that radiate from erect stamens. Shades of red are more frequent among night-flowering tropicals, and H. C. Haarstick stands out as the finest, with Emily Grant Hutchings and Mrs. George C. Hitchcock close on its heels. Green to coppery to red foliage with deeply serrated edges is a characteristic peculiar to the night-blooming varieties. And, by the way, the pink and red night-bloomers given here, with the exception of Mrs. George C. Hitchcock, were developed at Tower Grove Park by the late James Gurney, Sr.

The culture of hardy and tropical waterlilies differs in a few details. The hardy types require less space than tropicals, and may be left undisturbed for a few years if not allowed to freeze. Containers should be lowered in winter below freezing level; or the pool may be covered with boards and a layer of leaves or straw to prevent freezing of rootstocks. After a few years hardy waterlilies ought to be lifted and reset in new soil. At that time they can be propagated by separating and cutting the rhizomes, or thick rootstocks. Just be sure to include an "eye," or axillary bud, for each segment.

Where freezing weather is rare or un-

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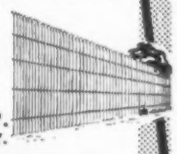

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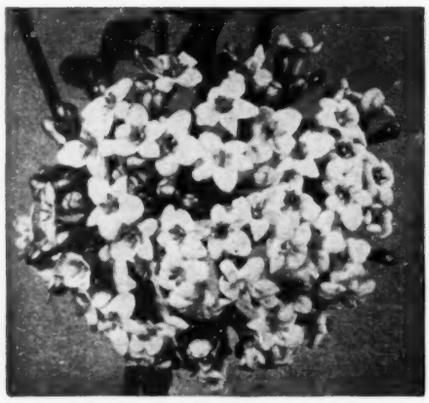

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FRAGRANT

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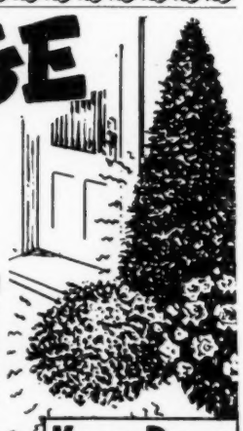

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known, tender waterlilies may be left out from year to year; otherwise they are treated as annuals. The cost of purchasing new plants each year is negligible, but if storage facilities—a greenhouse, for instance—are available, tropical waterlilies may be propagated successfully by an amateur. The rootstock is comparable to a tuber or bulb. In a season these bear additional tiny tubers that can be picked off, stored in slightly moist sand in closed containers until early spring. About the size of a walnut, these new tubers are potted around 2 inches deep in sandy soil and the pots placed in water of at least 70°. As soon as floating leaves have developed, in about two weeks, the stemlike growth connecting the young plant to the tuber is pinched off with thumb and forefinger above the tuber. Left in the pot, the propagating tuber will send up another plant in two weeks or so. This process may be repeated several times.

The young plant should be potted immediately and placed in a heated tank. The crown is kept above the soil, which is covered with ¼-inch of clean sand to prevent leaching under water. Young plants are usually started in 3-inch pots and transplanted once before they are set outside in May.

The time to plant tropical waterlilies outdoors depends on climate. In the Midwest, the second week of May usually finds water temperatures up to stay at about 70°. But the pool should be readied a few weeks ahead of actual planting. Tender lilies need about a foot of water above them and at least a foot of soil in which to grow. If they are planted in boxes, a bushel of soil should be allowed to each plant. Set directly in the pool, a foot of soil above any impervious bottom will suffice.

The best soil for waterlilies is a mixture of three parts of good topsoil and one part of thoroughly rotted cow manure. Containers with this soil mixture should be lowered into the pool, placed at proper levels and then plants set with the crown above the surface of the soil. Once planted, the waterlilies need not be disturbed during the season except for picking off dying leaves, faded flowers and seedpods to make them tidy. Relatively few insects attack these easy flowers. Aphids or plant lice can be removed by a forceful water spray, and the insects make a good meal for goldfish. Yes, it is advisable to include fish as scavengers in a pool.

Water gardening is indeed a fascinating sport. Try it and find out for yourself.▶

● For information on **Flower Grower Round Robins** write Mrs. Mabel E. Wickman, director 1014 Churchill Avenue, Utica 4, N. Y.

Plant Foods

[FROM PAGE 67] of sodium silicate, can increase crop yields when the soil is deficient in phosphate. Also, plants grown without soluble silicon are often more susceptible to mildew than those that have silicon available.

Chlorides are taken up by plants from the soil solution. No soils are deficient in chlorides, but a few crops are benefitted by extra applications. Maturity may be hastened, for example.

The trace elements are given this name because exceedingly minute quantities are present in the soil, and exceedingly minute quantities are used by plants. Yet they are essential. Iron, manganese, zinc, copper, molybdenum, and boron, for example, may be present in amounts of a few ounces to a few pounds per acre.

Sometimes the absence of a trace element shows up in the appearance of the plant. Or it can be revealed merely by a general slow development. In other cases the trace elements are not lacking, but merely unavailable. Increasing the acidity of soil (as by adding sulphur) may correct this. In the same way, liming, which of course increases the alkalinity of the soil, may cause an effect of unavailability of a trace element.

There are two kinds of progress being made in plant nutrition. One kind is the scientific progress that scientists are making in experiment stations and colleges

Meet the Author . . .

• John Asch, who is consultant for FLOWER GROWER'S special section on soils this month, has a background of wide horticultural experience both of an academic and practical nature. University-trained both here and abroad, Mr. Asch has given active help in establishing agricultural colonies in Palestine and in Europe founded and directed agricultural training schools for refugee children. Above he is pictured delivering a lecture-demonstration on tree planting before one of these school groups in Southern France. Mr. Asch is author of the authoritative and comprehensive book "The Story of Plants."

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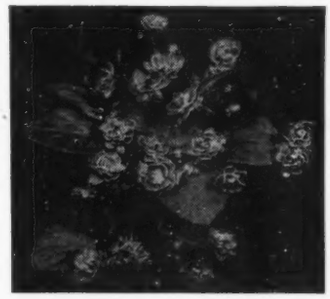

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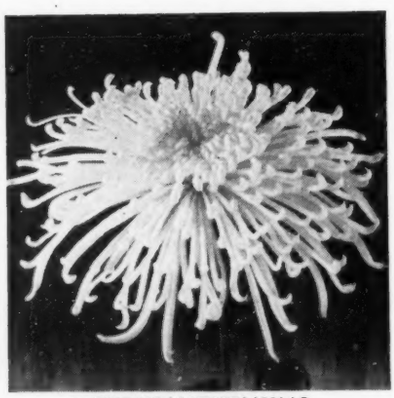

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DAME ENID LYONS (Large creamy white)
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TURNER PINK (Large)

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and laboratories. The other kind is in the *use* of this new knowledge, and the products it makes possible, by the gardening public and the different branches of agriculture.

For example, liquid and soluble plant foods have been developed in recent years. In three years the public acceptance of these products has been phenomenal. It has good results: people have used these easy-to-apply chemicals who did not use any before. In many cases, wise old gardeners say "they're not economical." But the truth is that for small gardens *they save time.*

Lots of the wonderful results of packaged products may be due to extra watering, extra care, and the fact that the fertilizers are used at all. In many cases, however, exceedingly experienced specialists in gardening use the newer ideas for solving special problems—getting a late-planted rosebush off to a good start, or spraying such elements as nitrogen and iron directly on the leaves to quickly correct a deficiency.

The total picture for good gardeners is about this: Wider knowledge of soils and fertilizers means that more people add organic material to the soil, which they should. Wider availability of the necessary supplements in chemical form means that gardeners can improve the growth of plants in their garden with less work, less fuss, and quicker results when needed. The best gardeners today feel that it would be virtually impossible to grow flowers and vegetables without widespread use of complete plant foods. But they also try to add every organic and chemical supplement to their soil that they can—for a good soil makes a good garden.▶

Movies on Soil

• Soil fertility, its importance and maintenance, is explained graphically in three new movies, with sound, available without cost to local groups. One, "The Life of the Soil," shows nature's methods for maintaining soil fertility and how man has adapted these methods in using both organic matter and commercial plant food. This movie has been made in two versions for both northern and southern gardeners. A second film, "What's in the Bag," explains the sources and functions of plant nutrients contained in a bag of mixed fertilizer. Problems involved in production of chemical fertilizers are illustrated. Nutritionally deficient plants and animals are the subject of the third movie "Hunger Signs." Send requests to The National Fertilizer Association, 616 Investment Building, Washington 5, D.C. Include a list of possible-showing dates as the demand is heavy.

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Soil Condition

[FROM PAGE 64] particles determines the size of the pores and so the soil type. Small particles, which permit minimum pore space, result in a fine-textured, heavy soil. Large particles, which allow generous pore space, produce a coarse, light soil. (*Light* and *heavy*, of course, are terms not of weight but indicate ease of working the soil.) Soils also contain larger pores tunneled by worms and other animals or left by decayed roots.

Because plants derive their chief nourishment from the water solution (with its soluble salts) absorbed through the roots, good soil porosity—which allows space for this water and for air as well—is one of the most important conditions of good soil.

(A list giving the American Bureau of Standards' size classifications of soil particles as well as condensed information on their mineral composition appears in the box on page 108.)

In our discussion of soil composition thus far, we've considered the mineral particles and water solution. Let's turn now to the organic content. Living matter in the soil—plant and animal—is constantly beginning life, growing, maturing, dying, decaying and breaking down into its original elements. Thus we see that soil is a living thing—the same few elements are constantly being taken up, fixed in place for a limited time, released and then re-used. Indeed, endless generations have deposited their residues in the soil. This organic matter, both living and dead, plays a key role in the physical and chemical actions taking place there. The living organisms attack other living or dead organisms and themselves are subject to similar attack. Many organisms work on only one particular soil element or compound, while others are indiscriminate. Some are quite large, earthworms, for example. Others are so small that only their products can be observed. Under good soil conditions, all these organisms increase at a tremendous speed until there may be billions in a thimbleful of soil.

The tiniest organisms are called microorganisms. These fall into two major classes: microflora, which include the bacteria, and the microfauna, which include protozoa.

These microorganisms are workers. Indeed, bacteria and fungi are the chief microscopic organisms of decay, greatly aiding in the decomposition of vegetable matter into humus.

Some fungi are parasites, which feed

■ A directory of soil conditioners will be found in the "Gardeners' Guide," which begins on page 75.

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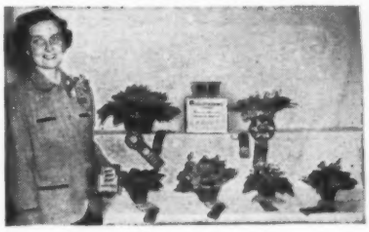
How Mrs. Hotchkiss won 9 national awards



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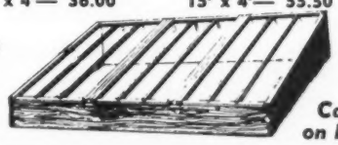

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on other living organisms, and others are saprophytes, which live on dead or decaying organic matter. Saprophytes are efficient converters of food.

Algae are chlorophyll-containing organisms usually found at or close to the soil surface. They act on the soil in four ways. They help to bind the soil. They aerate it. They add organic matter. They fix atmospheric nitrogen.

In the microfauna class, the protozoa are minute animals which help to sterilize the soil. They move in the pores containing water, never in dry soil. They are beneficial to certain bacteria.

"Graduating" from the soil microfauna to the fauna, we find, among other relatively large soil animals, the earthworms. These invertebrates perform three functions: (1) They aerate the soil and aid drainage by burrowing rather large channels. (2) They grind up and macerate plant litter and excrete it in a form more readily available for attack by other soil organisms. (3) They distribute this material through the soil. Between them and the moles, ants and termites, appreciable amounts of subsoil are moved and mixed with topsoil. These animals can transfer topsoil as deep down as 10 feet!

Some of the soil's animal population, large and small, are hosts to certain diseases harmful to animals and man. Nematodes, some earthworms, potworms,

Mineral Soil Conditioner

CALFIDE DISTRIBUTING COMPANY

Plant in Calfide-improved soil, left, excels untreated one, right.

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mites, millipedes, centipedes, some shell animals and many insects are included in this group.

When the organic portion of soil becomes partially decomposed, it is called humus. This brown or black material is a complex and varying mixture, with new materials constantly being added. As the materials in humus gradually become completely broken down, they pass out of the humus stage and enter into various chemical combinations, finally becoming a part of the soil solution for plant use.

Whether occurring naturally as in an undisturbed forest floor or mixed by the gardener into his rose bed, humus does these things: It promotes water penetration and retention, it provides for beneficial bacterial activity and, of course, it makes soil more easily workable.

Synthetic—i.e., soil chemical conditioners were first introduced early in 1952, prematurely in many ways. The past year they have been tried out on a hit-or-miss basis by hundreds of thousands of gardeners. Careful scientific testing of them is still going on and will continue for some time to come. But as of early 1953, it is an established fact that soil conditioners are effective when used in correct amounts and according to instructions. Soil conditioners perform exactly the same function as natural soil chemicals—they serve to aggregate the soil particles. This produces a looser-textured soil, thereby increasing water penetration and retention, eliminating soil crusting and reducing erosion. (See reader reports on page 6 and the article on soil conditioners in the April, 1952, issue of FLOWER GROWER.)▶

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Soil Questions

[FROM PAGE 74] Q. *Why do some plants grow best on acid soil?*

A. The environment in which acid-soil plants evolved was deficient in calcium. Hence the plants developed the capacity to do without calcium. Such plants frequently contain relatively large amounts of aluminum and manganese in place of the calcium. Mycorrhiza (fungi living in harmony with roots) often play an important part in the growth of such plants.

Q. *On what soil type is overliming apt to cause trouble?*

A. Sandy soils in rainy regions are apt to suffer most from overliming. Such soils have little buffering action and hence lime will raise their pH considerably in a short time. They have few minor elements anyway, and increasing the pH will make these few even less available because minor elements, such as copper, zinc and manganese, are not assimilated when the soil alkalinity is high.

Q. *Where are the acid soil areas of the United States?*

A. Most of the soil in the eastern United States east of the 100th meridian is acid except in localized areas where the soil is derived from limestone or calcareous shale by glacial grinding. Soil in western Washington, Oregon and Northern California is also acid.

Q. *Are hard coal ashes any good for improving a garden soil?*

A. Hard coal ashes do not contain the toxic quantities of sulfur and iron so common in many soft coal ashes. Hence they can be used for improving the physical condition of a heavy soil for garden use. Work in as much as a 2-inch layer of these ashes, down to a depth of 9 to 12 inches.

Q. *What is hyperhumus?*

A. Hyperhumus is a black, finely textured form of organic matter which is naturally impregnated with lime, thus making it nearly neutral in reaction. It is free of weed seed and is excellent for improving the physical condition of sandy, clay or loam soils.

Q. *Which is better to lighten my heavy soil, sand or sifted coal ashes?*

A. The coal ashes.

Q. *I have access to a good pile of soft coal ashes which are a year old. Is it safe to use them to improve the physical condition of my garden soil?*

A. Whether coal ashes exposed to the weather for a year are safe to incorporate in garden soil depends on how deep the pile is and how much rainfall has dropped on it. Where the pile is very deep, even three years' exposure to rainfall will not remove the toxic sulfur and iron from the ashes. Use only the ashes

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that have been repeatedly wetted by rain, or incorporate a goodly amount of limestone to counterbalance any remaining toxic materials.

Q. *I read conflicting opinions on how to protect plants for the winter. Some say they should be protected before freezing weather arrives, others say after it arrives. Which is correct?*

A. It will depend on the kinds of plants being grown. Plants that are not hardy, such as the cultivated fig, should be protected before freezing weather comes; otherwise the low temperatures will actually kill the plants. Hardy plants, on the other hand, should be protected after the cold weather arrives and the top layers of soil are frozen. Such plants are protected with mulch and evergreen boughs, not to protect them from cold but to keep them cold. This will prevent alternate freezing and thawing of the soil, which does a great deal of damage.

Q. *A portion of my back yard is very low and quite damp during most of the year. Are there any flowers or shrubs that will grow here?*

A. Cardinal flowers, loosestrife, Japanese iris and rose mallow are perennials that might do well. Among possible shrubs, try Viburnum dentatum, Aronia arbutifolia, Clethra alnifolia and the swamp azalea, (Azalea viscosa). [Also see page 78 and 79.—Ed.]

Q. *I have heard that periwinkle makes a good ground cover for shady spots. Is this so?*

A. Periwinkle (Vinca minor var. Bowles) makes an excellent ground cover in semishaded locations provided the soil is well drained. The leaves of this variety remain green all winter and do not brown during the high temperatures of the summer. Moreover, the flowers of the Bowles variety are larger and bloom right up to the fall.

Q. *My outdoor lilies look very good except that the very tips of the leaves (½ inch or so) are brown. What remedy may I use?*

A. This condition is quite common on lilies and usually the browning does not continue to spread on the leaves. It may be caused by low humidity, excessively high temperatures or deficiencies of moisture in the soil.

Q. *I am having great difficulty in establishing mountain laurel on my property. I buy good plants, provide good soil drainage and work in peatmoss. The plants make little to no growth even after a year. Eventually they die and have to be replaced.*

A. Assuming there is no toxic chemical in the soil, the trouble may be due to lack of so-called mycorrhiza. Some plants will not do well unless certain fungi which grow in close relationship with the roots are present in the soil. I

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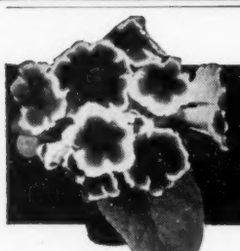

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Q. *Can the packing material, excelsior, be used as a mulch?*

A. Some gardeners find that it makes a good mulching material. I do not like it because it is highly inflammable when dry and a carelessly thrown cigarette or still lighted match can be disastrous.

Q. *I am considered a good gardener and usually succeed with most everything. The one plant I cannot seem to get to flower is nasturtium. It grows excellent leaves and stems but no flowers. What should I do?*

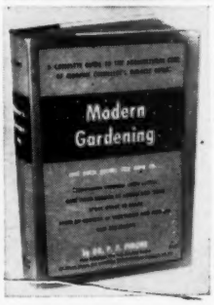
A. In all probability the soil where you now grow them is much too rich and perhaps too moist. Try a sunny spot where the soil is poor (bakes hard) and where little water reaches the area.

Q. *Should peonies be protected with a winter mulch?*

A. No; most any sort of mulch over peonies will tend to encourage the development of rots caused by several soil-inhabiting fungi.

Q. *Will the addition of iron to the soil around my climbing roses make the color of my New Dawn rose deeper than the naturally light pink?*

A. Probably not. Other factors govern the intensity of the flower color. The more foliage on the plant, the brighter and more intense the coloring. Hot weather makes the colors less intense because more of the food from which the pigment is manufactured is used up in respiration. Excessively bright sun and premature leaf fall caused by disease also tend to lessen color intensity in the blooms.



Dr. P. P. Pirone, above, answers a great many questions on the newer chemical aids for gardeners in his recent book "Modern Gardening," from which the above questions were reprinted.

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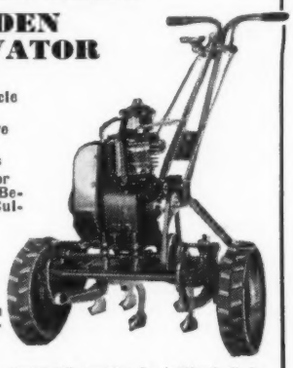

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Q. *How often should I fertilize the blueberries in my garden?*

A. Fertilize twice a year; first when the bloom on the earliest varieties starts to open (late April) and again when the fruits begin to show color. Use a 7-7-7 or a 5-10-15 fertilizer at the rate of 1½ pounds per 100 square feet.

Q. *How should gladiolus be fertilized?*

A. First of all, there is danger of overfertilizing glads. Some nitrogen will increase the length of flower spikes, but too much nitrogen will stimulate the fungus that causes corm rot. It is best to side dress your gladiolus after flowering to furnish nutrients that may be stored in the corm for the following year's production. Cormels and young bulbs require more fertilizer applications than older bulbs to ensure a good increase in yield.

Q. *Can you advise me as to the best soil type for fruit trees?*

A. Generally speaking, apple trees prefer loamy, deep, well-drained soils. Peaches prefer the lighter types. Neither the apples nor the peaches will tolerate wet subsoils, however. Pears and plums are fairly tolerant of moist soils as long as the area is not swampy. Although fruit trees are less sensitive to soil acidity than some crops, they will respond to the incorporation of lime in the soil.

Q. *Can you suggest a good chemical fertilizer for my hedge?*

A. Any 5-10-5 or similar ratio is satisfactory. Use 5 to 10 pounds for each 100 feet of hedge, depending on the size of the hedge.

Q. *What kind of food is best for lilies?*

A. A complete chemical fertilizer relatively high in potash, such as a 5-10-10, is best. Do not use manure since it tends to make the bulbs more susceptible to rot.

Q. *The plants in my flower border grow very tall but produce few flowers. What is wrong?*

A. Assuming the plants get sufficient light, then the most plausible cause is that the soil has too much nitrogen or a great lack of phosphoric acid and potash. Try a few pounds of a 0-14-14 chemical fertilizer on a small (5 by 5 ft.) section of your garden.▶

State Experiment Stations

• Listed below are the addresses of the various State Agricultural Experiment Stations in the country:

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Several methods can be used to tell whether your soil is acid or alkaline. Strips of litmus paper can be bought at the local drug store. When placed in contact with moist soil for a few minutes they may change color. If blue paper turns red, the soil is acid; if red paper turns blue it is alkaline; if either turns purple the soil is neutral. These tests are useful, of course, but they do not tell *how* acid or alkaline the soil is. For this purpose a good soil testing kit is needed, and you'll find such a kit both easy and interesting to use. If you want maximum accuracy, you'd do best to rely on the soil scientists at your state college or experiment station and send them a sample of your soil.

If you want to test your soil for its plant nutrient content, as well as its acidity-alkalinity reaction, you'll need a soil test kit that includes chemicals intended to show deficiencies of the major nutrient elements and at least some of the minor or trace elements. Such kits are available and for most purposes will prove sufficiently accurate. Also, if you like "doing things yourself," you'll find them both fascinating and instructive. If you "can't be bothered" with such things or if you're a stickler for accuracy, however, you should send a sample of your soil to your state experiment station for complete testing.

Soil drainage can be tested in several ways. One way is to study the color of the topsoil and subsoil. This can be done by digging a hole several feet deep to expose a soil profile. A brown, yellow or red soil usually indicates that air is reaching the area and that drainage is satisfactory. Green, gray or mottled soil indicates water is being held in one place too long and root growth will not be satisfactory. The best soils are dark to spading depth and brownish yellow below. Another indication of poor drainage is that the leaves of plants often turn yellow and drop off. Moss and mushrooms usually grow on damp soils.

A good test to tell whether or not the soil is too moist for digging and cultivating is this: Squeeze a handful of soil; if it forms a solid ball which retains its form after being released, it is too wet; if it separates easily when touched, it is ready for working.

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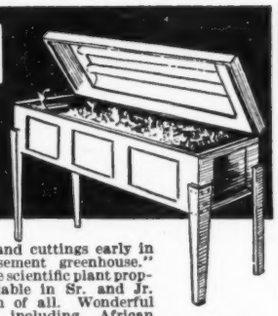

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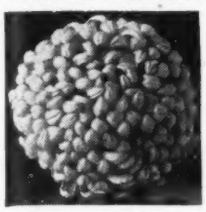

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100 Big Clumps $13.00 (1000, $90)

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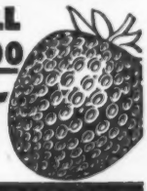

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TUBEROUS-ROOTED
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Glossary of Garden Soils

COMPILED FOR *FLOWER GROWER* BY JOHN ASCH

ACIDITY. Soils may be either acid, neutral or alkaline. The degree of soil acidity and alkalinity is measured by what scientists call the hydrogen ion concentration, commonly designated by the symbol pH. The pH scale reads from 1 to 14, 7 being neutral. A reading above 7 indicates alkalinity, below 7 acidity. An acid soil condition turns blue litmus red. Acid soils usually develop in moist climes, where heavy rainfall leaches down the salts and calcium.

ALKALINITY. Alkalinity is the opposite of acidity. Alkaline soil is usually found in limestone country, where the water is hard. Many deserts and so-called badlands, where there is insufficient rainfall to wash away the alkaline salts, have very alkaline soil. Alkalinity turns red litmus blue.

AMENDMENT. A soil amendment is a non-nutrient material added to soil which aids plant growth by its physical or chemical effect on soil. It improves soil texture and quality, rather than adding plant food as would a fertilizer. Flowers of sulphur, which neutralize alkaline soils, lime, which neutralizes acid soils, peatmoss, coal ashes and chemical soil conditioners are all soil amendments.

ARABLE. A piece of land which is fit for cultivation is *arable*.

ARID. A dry, barren soil, usually parched by heat, is *arid*.

ASHES. Ashes are the powdery residue of a material which has burned. Vegetable ashes, including wood ashes, are usually rich in potash and other plant nutrients, and therefore are used as fertilizers. Coal ashes and cinders, which have no nutrient value, may be used as soil conditioners.

AVAILABLE. Any nutrient present in soil in such a condition that it is soluble in water and can therefore be readily absorbed by plants' hairlike feeder roots (or by the leaves, as in the case of certain liquid fertilizers) is termed *available*. The availability of nutrients may depend on temperature, pH and the chemicals present.

AQUATIC PLANTS. Technically speaking, only plants which float upon the water, such as waterlilies, or plants completely submerged, such as eel-grass, are *aquatic*. But in gardening the term also includes plants whose roots alone are in water, such as cat-tails. In addition, plants which grow along the banks of streams and ponds and in bogs, marshes and swamps are generally known as aquatic plants. [CONTINUED NEXT MONTH]

5 Strong 2-3 Yr. old EVERBLOOMING ROSES $2.49 POST PAID

10 for $4.79; 25 for $11.25
Will Bloom Few Weeks After Planting
GOLDEN RAPTURE, clear lemon yellow; MME. BUTTERFLY, salmon flesh and gold; POINSETTIA, scarlet; BRIARCLIFF, pink; TALISMAN, copper, gold and apricot.

GLADIOLUS a collection of foremost varieties. Rainbow mixture . . . 30 for $1.45
Shipped at your planting time
FREE CATALOG—Lists Roses for every purpose: Perennials, Flowering Shrubs, Trees, Bulbs

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BIO-GRO
ORGANIC Liquid Fish PLANT FOOD
JUST ADD WATER
SPRINKLE OR SPRAY

Enjoy a greener lawn, lovelier flowers, bigger vegetables with BIO-GRO true liquid fertilizer. It's complete food for all plants, quickly absorbed through roots and leaves for sensational growing results.
10-5-5 Formula gives DOUBLE VALUE PLUS natural plant growth factors. Not a slurry or emulsion. No burn, odor or waste; keeps indefinitely. Ideal compost activator.
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Esuga Canadensis Hemlock 2-3 ft. B. & B. Nursery Grown, each $3.
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in a box, greenhouse, or Hotbed. Scientific instructions, copyrighted, $1.00. It is easy, in an amazingly short time, to root cuttings of Camellias, Azaleas, Gardenias, Roses, Evergreens, and other plants, in sand, any time of the year, with our instructions. This information costs us thousands of dollars, and years of experience, and costs you only $1.00. Postpaid.
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Free catalog on Camellias, Azaleas, Gardenias

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EASILY MADE FROM WASTE MATERIAL
Burkleigh Compost Activator is entirely natural; organic. Makes sweet, earthy compost from leaves, grass clippings, garden waste, hay, straw, sawdust, manures if available. A little does much. Keeps full strength until used.
Send only $1. for enough to activate up to two tons, plus complete instructions including "Secrets of Sawdust" and special 32-page booklet "Gardening in God's Way." ORDER TODAY.
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GIANT RANUNCULUS—Largest Strain in the World! Gorgeous double, full petaled flowers of the Camellia type. Riot of breathtaking colors—red, orange, pink, yellow, white and picotees. Wonderful in garden and unsurpassed as cut flowers. Easy to grow ANYWHERE! ☐ 50 BULBS only **$1**

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SPECIAL COMBINATION OFFER
50 RANUNCULUS and 50 ANEMONES ☐ 100 BULBS $1.89

GIANT ANEMONES—Large poppy-shaped flowers of varied, vivid shades. Rich in blues, red and whites, they are especially delightful with Ranunculus. ☐ 50 BULBS *only* **$1**

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Very Special 1953 NOVELTIES

Wonderful NEW "GRANDMA BRIGGS" GLADIOLUS

Subject of Feature Story, Sat. Eve. Post, Sept. 27, '52

Another Germain's Exclusive . . .

These glorious new glads from the most widely publicized "dean of gladiolus hybridizers," 90 year old Elizabeth Briggs, are the result of scores of years spent combing the world for new gladiolus "blood." Thousands of crosses and hybridizing efforts have culminated in these gorgeous new varieties. The most beautiful pure colors and largest flowers you will ever see.

So new they are not even in our catalog—and you can get them ONLY from Germain's! Limited quantities—order NOW!

☐ **MAYOR ROBINSON**—bright yellow, crimson blotch ☐ **HIGHNOON**—deep vibrant orange ☐ **SNOWSTORM**—dramatic pure white ☐ **BLUE HEAVEN**—heavenly blue ☐ **BRIGGS GIANT RED**—glorious red ☐ **HAZEL CONSTANT**—delicate shell pink.

3 for $1 6 for $1.75 12 for $3.25

YELLOW CALLAS

NEW PACIFIC STRAIN BEGONIAS

CAMELLIA FLOWERED TYPE

Wonderful new tuberous rooted Begonias, noted for magnificently colored wax-like flowers, set off by lush green foliage.

☐ **RED CHARM**—vibrant red. ☐ **APRICOT GLOW**—soft apricot. ☐ **ORANGE DELIGHT**—bright orange. ☐ **AVALANCHE**—pure white. ☐ **ROSE BEAUTY**—deep rose. ☐ **YELLOW SATIN**—shining yellow.

HANGING BASKET TYPE

All-double flowers, often hundreds to the plant. In ☐ red, ☐ salmon, ☐ rose, ☐ pink, ☐ yellow, ☐ white.

BARGAIN COLLECTION—1 Each of the 6 named varieties at left PLUS 1 Hanging Basket Begonia (color your choice) ☐ 7 bulbs in all, only $2.25.

ALL BEGONIAS ABOVE: 3 for $1.25 6 for $2.25 12 for $4.25

Special* FANCY LEAF CALADIUM *Offer! One each of 5 superb NAMED varieties of this spectacular foliage plant . . . ☐ 5 extra large bulbs, only **$2**

HANGING BASKET BEGONIA

FAMOUS $1 SPECIALS

BEGONIAS Giant double, Camellia type. Lovely for shady garden spots and grand for indoor culture. One each of red, rose, yellow, pink, white PLUS 1 Hanging Basket Begonia (our color choice). ☐ *6 Bulbs only* **$1**

Giant RAINBOW GLADIOLUS For huge, spectacular blooms in an amazing array of colors. 5 each red, yellow, pink, lavender, white, PLUS a special novelty bulb. ☐ *26 Bulbs only* **$1**

YELLOW CALLAS Pure yellow flowers on tall stems. Mossy green leaves, spotted white. ☐ *3 Bulbs only* **$1**

FANCY LEAF CALADIUM Colorful foliage plant. Does beautifully in shady locations or in pots indoors. One each of 5 shades. ☐ *5 Bulbs only* **$1**

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RED LILY OF JAPAN *Lilium Rubrum.* Masses of carmine rose flowers with white edges and spotted with crimson. Showiest of all lilies and excellent as cut flowers. ☐ *3 Bulbs only* **$1**

GLOXINIAS Giant trumpet shaped flowers in sparkling reds and blues, edged with white. Superb as pot plant with fast growing, lush velvety foliage. ☐ *3 Bulbs only* **$1**

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Any 3 $1 Specials $2.75
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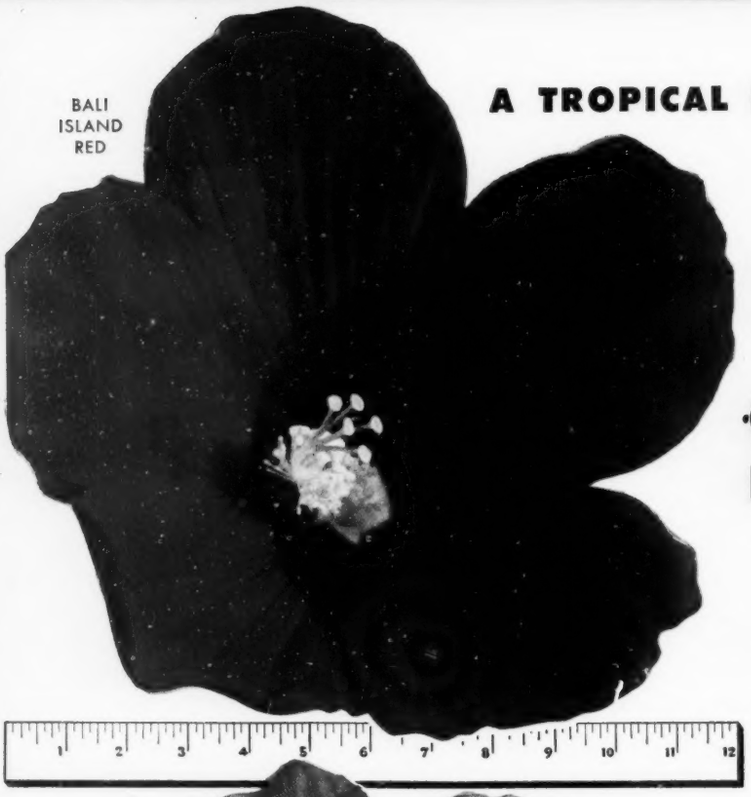

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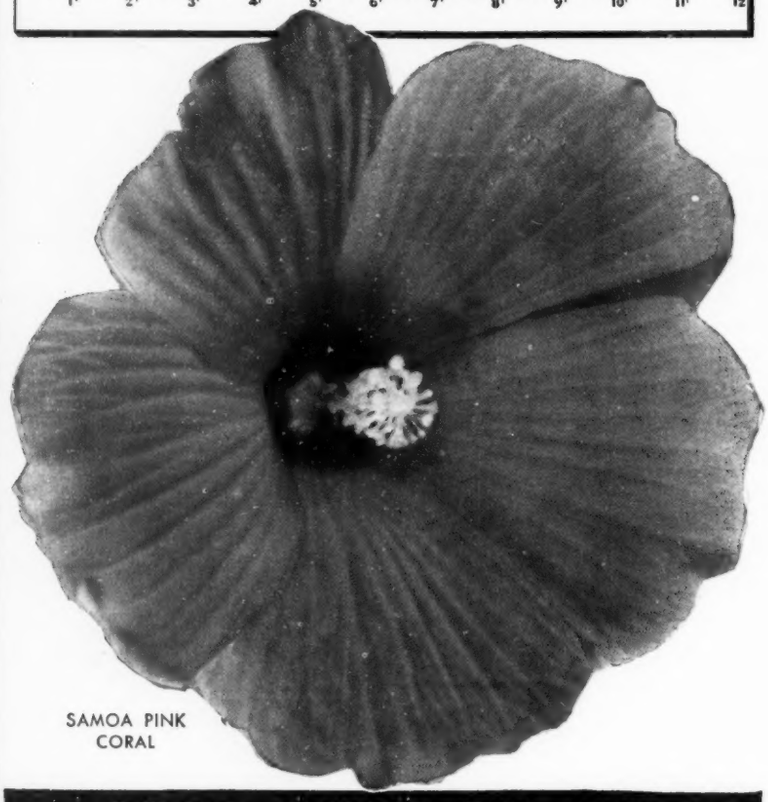
A TROPICAL PARADISE IN YOUR OWN GARDEN!

STERN'S SOUTH PACIFIC SUNGLORY

New Giant Hybrid Hibiscus

COLOSSAL FLOWERS up to 12 inches across!



SAMOA PINK CORAL

Like the tropical gardens you've read about in travel books—immense flowers larger than a dinner plate. Exquisite blossoms, colorful as a Java sunset. Now you can have tropical beauty in your own garden, *anywhere in U. S.*—even in coldest sections. Blooms continuously from July 'til frost. Each plant produces up to 50 huge flowers every year. Don't miss this tropical garden thrill!

SANDS OF TAHITI-WHITE

Guaranteed to bloom in 90 days

A gardener's conversation piece. These South Pacific Sunglories burst into glorious bloom only 90 days after planting. Plants grow 2 to 4 feet tall—last a lifetime—developing new beauty and flower production each year. Thrive in any soil; prefer full sun and plenty of moisture. For best effect, plant 24 inches apart in groups of three or more. Plant tallest variety in center. Most amazing cut flower for table decoration or in arrangement.

Order These Super Giant Varieties Now
Avoid disappointment due to limited supply

BALI ISLAND RED (SATAN) Scarlet red with yellow stamens. Spectacular 10- to 12-inch flowers. Bushes grow 3 to 4 feet tall. (Tallest variety)

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Each	3 for	6 for	10 for
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FOR MOST COLORFUL EFFECT—PLANT IN GROUPS

ALL THREE COLORS		
	one of each listed	$11.00
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Reserve _____ South Pacific Sunglories for my guaranteed tropical paradise garden! Money back at *any* time if I'm not 100% delighted.

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Enclosed is $_____

____	BALI ISLAND RED
____	SAMOA PINK CORAL
	SANDS OF TAHITI-WHITE

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RUSH!

Roses

[FROM PAGE 53] an occasional thorough soaking of the soil rather than light daily applications. The foliage should not be wet at nightfall as this encourages the development of diseases.

(6) As little of the foliage as possible should be removed when cutting a rose. The leaves are the lungs of the plant and when they are removed, either by disease or cutting, the vitality of the plant is decreased. This is particularly true during late summer when the plant is endeavoring to store sufficient food to insure its survival during the winter.

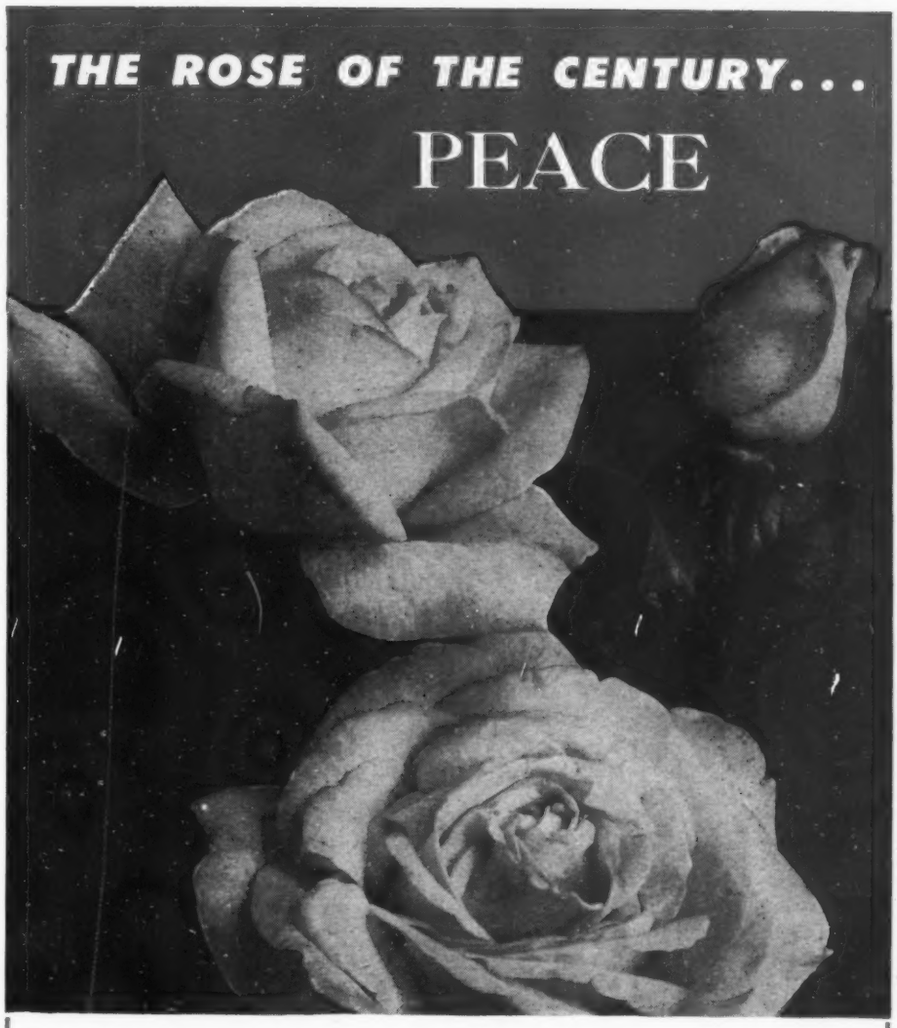
Contrary to general belief, roses are not continually hungry. An application of 2 to 3 ounces of complete chemical fertilizer (preferably high in phosphorus and potash) worked into the soil in late autumn or early spring, and again about the end of June, will produce maximum results. Although many authorities discourage the use of commercial fertilizers when planting roses in the spring, experiments have proven that it is advantageous if not placed in direct contact with the roots. A couple of ounces scattered in the hole, an inch or so above the topmost roots, will cause no injury as dilution and descent is gradual and the roots will be ready to receive it when it reaches them. Barnyard manure is valuable as it supplies both food and humus and can be worked into the soil or used as a winter mulch over the protective earth mound. However, on poor soils it should be supplemented with a commercial fertilizer and, if fresh, should not be placed in direct contact with the canes.

The normal pH and the texture of the soil are, within reason, relatively unimportant as the average rose will thrive under various soil conditions. However, a pH of between 6.0 and 7.0 and a clay loam are best.

If the less vigorous hybrid teas, polyanthas and floribundas are planted closely together (12 to 18 inches), the effect is more pleasing but considerably more fertilization is required. Winter protection becomes a greater task as soil for mounding must be obtained from

Shepherd Host to Rose Societies

• A joint meeting and rose show of the Cleveland, Forest City, Akron, Goodyear and Lima rose societies will be held at Medina, Ohio, on June 21. The meeting, including a picnic, will be held at the garden of Mr. and Mrs. Roy E. Shepherd and the show will be staged at the local grange hall. All residents of northern Ohio are invited to exhibit at the show, which will be judged by a team of Detroit rosarians. Information may be obtained by writing Mr. Shepherd, Route 1, Medina, Ohio.



PEACE, the glorious yellow edged in pink "rose of the century", has won almost every rose award in England, France and the United States, *but even more important to you,* its rare combination of true beauty and easy growth has made it the gardener's delight.

PEACE is the one rose you should have—no matter where you live—no matter how big or small your garden. It does well everywhere.

If you can add but one rose—make it Peace. If you have space—add as many as you can. Every one will multiply your garden enjoyment, add to your chances for local awards.

GET PEACE NOW

from your favorite nursery or plant store. Practically all rose dealers sell Peace, America's favorite rose. Two year, field grown plants, $2.50 each, 3 for $6.60.

Star ☆ Roses

THE CONARD-PYLE CO.

56th YEAR WEST GROVE 402, PA.

LEADING ROSE DEALERS SELL PEACE

20 MILLION TREES a Year!

MUSSER'S Tremendous Volume Insures Greatest Values

For the best landscaping of YOUR HOME insist on Musser Quality plants. Grown by the Musser Method they have HEAVY ROOTS, STURDY TOPS (see at right) and soon will grow into beautiful, large specimens . . . Stretch your dollars—Buy small sizes—then watch them grow!

Better Health and Growth Assured by Superior Root Systems of Musser Cultured Tree Stock

Fred Musser Compares Trees

See for yourself the actual difference between a Musser seedling (at right) and the usual evergreen seedling offered elsewhere. Ordinary plants just don't have the sturdy root systems and well developed tops found in Musser Quality nursery stock. Insist on the best. Buy Musser's.

Get MORE for your money!

25 Evergreens $5. Postpaid

Special No. 1. All 3 and 5 year selected, healthy trees, following varieties:

5 Colorado Blue Spruce 6" to 10"
5 Norway Spruce .....10" to 16"
5 Austrian Pine ..... 8" to 16"
5 Scotch Pine ..... 6" to 10"
5 Douglas Fir ..... 6" to 12"

COLORADO 5 BLUE SPRUCE $3.50 Postpaid

Special No. 2. Excellent 6 year transplants, 8 to 14 inches tall. Color, blue-green to marvelous blue. Compact, sturdy; handsome specimens or hedge.

10 Rhododendron $4. Postpaid

Special No. 3. 9" to 12" single stem to lightly branched. Fine young plants — will grow bushy. Maximum — Excellent ornamental, large clusters of gorgeous flowers shaded white to shell pink. Prefers partial shade. Gives a natural "Woodsy" effect.

20 White Birch $3.50 Postpaid

Special No. 4. Twenty 16" to 24" Seedlings. Bark turns creamy-white after 3-4 years. Graceful clump by planting several together in each location. Hardy.

FOUNDATION PLANTING SPECIAL . . . No. 5

Ten excellent trees as follows:

5 JAPANESE YEW, twice transplanted, upright, compact natural cone shape; deep rich green foliage. Hardy in sun or shade. Branched trees from 15 to 18 inches tall; and

5 PFITZER JUNIPER, bluish-green, fast growing spreader; for sunny spots. Branched twice transplanted trees, 10 to 15 inches tall.

All 10 for $15.50 Postpaid

(In three years these trees will be worth at least $5. each.)

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Special No. 6. (Rosa Multiflora) HEAVY 3 MM STOCK 10 to 18 inches. Dense, thorny fence. Prune to any height. Clusters of pinkish-white wild roses in June; bright red berries follow. Fast growing.

MAIL YOUR ORDER NOW!

Home Nursery Special

You can raise your own Landscaping Material with this assortment. A small investment now will be worth many times as much in just a few years.

10 Pfitzer Juniper	10-15"	$9.00
10 Canadian Hemlock	12-24"	5.00
10 Colorado Blue Spruce	8-14"	5.00
10 American Arborvitae	6-10"	2.50
10 Japanese Yew	8-14"	7.50
Cost at regular catalog prices		$29.00

SHIPPED TO YOU POSTPAID FOR ONLY $25.75

Write for latest catalog, including valuable cultural directions, Christmas Tree Growers Guide.

TO MUSSER FORESTS, INC.
BOX 7-C, INDIANA, PA.

Please ship the following at proper planting time for my location. Check ☐ or money order ☐ is inclosed:

(SPECIALS)
☐ No. 1 Evergreens $5.00
☐ No. 2 Blue Spruce ... 3.50
☐ No. 3 Rhododendron . 4.00
☐ No. 4 White Birch..$ 3.50
☐ No. 5 Foundation Special $15.50
☐ No. 6 Rose Hedge... $5.50
☐ Nursery Special $25.75

Name .....
St. or R.D. No.....
Town, Zone, State.....

MUSSER Forests, Inc. Box 7-C INDIANA, PA.

another spot and then disposed of in spring. When planted at a greater distance (over 18 inches), the somewhat leggy habit of some roses becomes apparent but disease is held to a minimum and soil for mounding can be pulled up from between the plants without injury to the roots.

If these few basic points are followed in rose planting, success may be expected. Remember, the average rose is not difficult to grow and will repay its original cost many times over.▶

Beginner's List of Roses

The following list by Roy E. Shepherd is a selection of rose varieties of various types that have proven their worth over a long period of time. Although it is by no means complete, it offers a wide array of colors and should serve as a suitable beginner's list.

Hybrid Teas

BLANCHE MALLERIN — white; CHARLOTTE ARMSTRONG—cerise-red; CRIMSON GLORY—velvety crimson; ECLIPSE—yellow, exceptionally long-pointed buds; ETOILE DE HOLLANDE — bright red; FORTY-NINER—red and yellow bicolor; GOOD NEWS—silvery pink with apricot tones; GRANDE DUCHESSE CHARLOTTE—various shades of red.

MME. HENRI GUILLOT—coral red; PEACE—yellow edged pink, very large; PEDRALBES—white; POINSETTIA—scarlet; RADIANCE — pink, always dependable; SOEUR THERESE — yellow; TALLYHO — light red.

Polyanthas and Floribundas

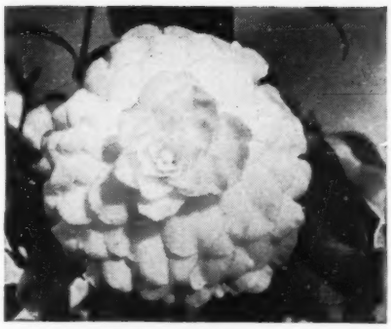
BETTY PRIOR—pink, single; DAGMAR SPATH — white, semidouble; DONALD PRIOR—red, semidouble; FASHION—pink, double, distinctive color; FLORADORA—red, double, has much eye-appeal.

FRENSHAM—red, semidouble; GOLDILOCKS—the only good yellow, double; IRENE OF DENMARK — white, double; SUMMER SNOW—white, semidouble; THE FAIRY—pink, double.

Climbers and Pillars

BLAZE—red, repeats, 10 feet, quite hardy; BLOSSOMTIME—pink, repeats, 8 feet, requires protection; CHEVY CHASE—red, 15 feet, hardy; CITY OF YORK—white, 10 feet, occasionally repeats, reasonably hardy; DOUBLOONS—yellow, 10 feet, not dependably hardy; DREAM GIRL—pink, 8 feet, requires protection, repeats.

INSPIRATION—pink, 8 feet, repeats, requires protection; MRS. WHITMAN CROSS—yellow, 9 feet, not dependably hardy; NEW DAWN—pink, 15 feet, hardy, repeats; SILVER MOON—white, 15 feet, usually shows no winter injury; TEMPTATION—red, 8 feet, repeats, not hardy and must be protected.



Camellias - Azaleas

Drastic Cut Price Sale for March and April Only

The Camellia is the world's most beautiful flower. They come in all shades and colors and formation and are 5 to 8 inches across—Most gorgeous of all flowers.

Lowest prices in History on CAMALLIAS, AZALEAS

All orders postage paid from this ad only.

STANDARD CAMELLIAS

Altheaeflora—Semi-double, pink-orange tint. Midseason.
Anna Frost—Large semi-double, clear pink to light red, semi-double. Midseason.
Auguste Delfosse—Large, clear rose, tips light purple. Midseason.
Bella Romana—Large double, light rose, splashed with red. Midseason.
Brilliant—Full double, brilliant red. Midseason.
Brown's Red—Semi-double, dark red. Late.
Cameo Pink—Full double, large, light pink. Midseason.
Candidissima—Double, medium white, calyx concave.
Cliveana—Medium size, thick peony type, solid deep pink. Late.
Countess of Orkney—Double rose, variegated.
Dark Cheerful—Full, double rose. Midseason.
Elizabeth—Very double, pure white, crinkled petals.
Haku—Rakuten—Semi-double, very large, white.
Herme—Very large, loose peony form, pink and red variegated with white margin. Midseason.
Jarvis Red—Semi-double, deep blood-red with golden stamens.
Lady Campbell—Full double, medium size, light red. Midseason to late.
Marchioness of Salisbury—Peony form, deep red, marbled white.
Monarch—(Honor of America, Gunnelli) large peony form, deep pink often with faint white markings.
Mrs. Abby Wilder—Peony form, medium to large, white slightly splashed pink.
Oriental—Midseason deep red, peony form.
Peony Rose—Old rose, very double.
Pink Poppy—Single or semi-double, fragrant, soft pink with rosette of stamens.
Sarah Frost—Full double, medium size, rose-red. Midseason to late.

Prices on Standard Camellias

1½ to 2 feet....$1.25 each
2 to 2½ feet.... 2.75 each
2½ to 3 feet.... 3.50 each

AZALEA SALE

Variety that will stand any cold in U. S.

Dwarfs—1 to 1½ Ft.

12 for only	$ 1.99	postpaid
24 for only	3.95	postpaid
50 for only	7.85	postpaid
100 for only	15.00	postpaid

Large or Indica Type—2 to 3½ Ft.

6 for only	$ 2.99	postpaid
12 for only	5.90	postpaid
24 for only	11.00	postpaid
50 for only	21.00	postpaid
100 for only	39.00	postpaid

Fiery Red, Velvet White, Yellow and Shell Pink or mixed in either. Dwarfs or Large.

These are Calendulacea varieties, grow anywhere. For border hedge arrangement plant 12 in. apart.

RARE CAMELLIAS

Admiration—Large, imbricated to peony-form, red.
Adolphe Audusson—Large, double, bright salmon-red.
Akebono—Early semi-double, salmon-pink.
Alba Compacta—Very large, full double, pure white. Early midseason.
Alba Superba—Large, semi-double, white.
Amazing—Carmine, lightly washed. Midseason.
Amabilis—White, large single. Early.
Angela Cocchi—White marked with red, stripes of pink. Early.
Arejishi (Aloha)—Early, peony-type, similar to Prof. Sargent, red.
Aurora—Large rose madder, prominent stamens. Midseason.

Beaute de Nantes—Large red, semi-double. Early.
Belle Jeanette—Light purple, dashed with white. Midseason.
Black Prince—Bordeaux color, semi-double, rose red stamens. Late.
Brassennie Variegated—Full double, late.

Carnation—Early bright red.
Centifolia Alba—Semi-double white. Early.
Christine Lee—Large, semi-double, deep pink with yellow stamens. Midseason.
C. M. Hovey—Double, large, red mottled, white.
Comte De Gomer—Double, pure white flecked pink. Midseason to date.

Daikagura—Semi-double, deep pink. Very early.
Daikagura Variegated—Large full peony form. Deep pink marbled white.
Daybreak—Medium size, fluffy peony form, soft pink.
Delectissima—Very large single white, with pink stripes, prominent stamens. Midseason.
Duchess of Sutherland—Semi-double, large white sometimes striped pink.

Eleanor Haygood—Large delicate pale pink. Late.
Elizabeth Arden Variegated—Medium to large, semi-double white. Late.
Ellen McKensey—Large light pink, washed with purple. Early.
Emperor of Russia—Very large, peony form, brilliant scarlet.
Empress of India—Turkey red, semi-double. Early.
Enchantress—Large bright red, semi-double. Late.

Fanny Bolis—Very large, semi-double, red blotched white. Midseason.
Feasti—Double white, pink or variegated white and pink. Midseason.
Fimbriata Alba—Medium size pure white with fringed petals imbricated. Midseason.
Firebrand—Large, semi-double, deep fiery red. Midseason to late.
Flame—Large semi-double, bright but deep red. Midseason.
Francine—Large deep rose-pink pompon type, heavy peony center. Midseason.

Gigantea (Emperor Wilhelm: Magnolia King)—Very large, semi-double, red and white. Late.
Glorious—Large, loose double, variegated pink and white. Midseason.
Governor Mouton—Large, deep cherry-red with white markings. Midseason.

Hakuo—Medium sized pure white, loosely imbricated. Midseason.
Hermite Red—Large aster purple heavily washed bordeaux, peony type shaped. Midseason.
His Majesty—Midseason semi-double, red with white dots, medium.

Improved Alba Plena—Large imbricated formal double. Pure white. Midseason.

Jenny Lind—Pure white, occasional red stripes. Early.

Kimberley—Medium sized carmine red, lightly veined purple, single. Midseason.
Kumasa Variegated—Large peony form, deep pink spotted white.

Lady Clare (Empress, Grandiflora Rosea)—Large semi-double, rose pink with ruffled petals. Good grower and bloomer.
Lady Mary Cromartie—Large semi-double, cherry red. Early.
Lady Van Sittart—Large semi-double deep pink.
Latifolia—Medium sized rich red with white blotches, semi-double. Late.
Lee's Pink—Double, early shell pink.
Lewis Red—Double, very large, red. Late.
Luries Favorite—Large, light rose, tinted with lilac, semi-double. Late.

Madam Chiang Kai Shek—Large red mottled with white. Midseason.
Marachino—Double, bright red. Midseason to late.
Margaret Higdon—Brilliant rose-red, loose peony type. Midseason.
Mathotiana Alba—Large pure white, occasional faint pink, line, full double, imbricated. Late.
Matsukasa (Pine Cone)—Rose pink with white blotches. Late.
Montironi—Full double, white occasionally variegated pink and solid pink. Midseason.
Mrs. Freeman Weiss—Semi-double with wavy petals of pink. Midseason.

Nagasaki—Very large, semi-double, white to rose pink.

Periguiana—Double, white prolific bloom. Midseason.

Prices on Rare Camellias

1 to 1½ feet.....$1.25 each
2 to 2½ feet..... 3.50 each
2½ to 3 feet..... 5.00 each

EXTREMELY RARE CAMELLIAS

Anne Lindberg—Red shading to ox blood, double, late.
Blushing Bride—White with petals lined deep rose pink. Late.
California Donckelari—Very large, semi-double red with prominent golden stamens. Midseason.
Chastity—Large full peony, white with creamy center. Midseason.
Donckleari—Large, semi-double, brick-red, flecked white. Early.
Enrico Bettoni—Large rose-red peony form. Midseason.
Firegold—Very large loose peony, dark red marbled white, with mass of golden stamens. Midseason.

Gov. Earl Warren—Soft pink, irregular rose form. Early.
Lady Jane Grey, (Eugene Lizze)—Double to loose peony form. Pink and white. Early.
Lois Hill—Semi-double mauve pink. Late.
Reticulata—Huge, fluffy semi-double with luminous rose petals. Midseason to late.

3 to 12 inch.....$1.00 each
1 to 1½ feet..... 1.75 each
1½ to 2 feet..... 3.00 each
2 to 2½ feet..... 5.00 each

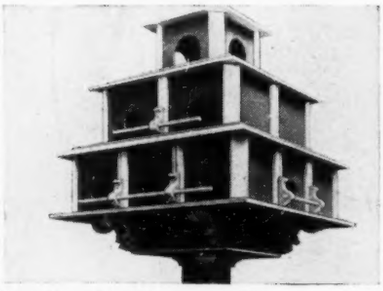
All plants are expertly packed in soil with Sphagnum Moss. You may plant above plants in pots and they will grow and bloom in the house if you prefer, as they are shade plants as well as sun plants, and foliage is green all year. Minimum order $3.00. Remittance with orders. Satisfaction guaranteed or return for refund.

NATIONAL NURSERIES

Dept. FG
BILOXI, MISS.

Self Attaching Window Shelf

Fastens to window sill without screws or nails—just slip flange between window and sill and you have a sturdy shelf for plants, fan, etc. The window may be left open, closed or locked. Made of rigid steel with rolled edges of durable baked white enamel. Shelf is 23" long 6" wide. $1.35 ea. postpaid; 2 for $2.60; 4 for $5.00. Write today for free gift catalog. Fischer's, 43-62 Bowne Street, Flushing, N. Y.



Martin Apartment House

Made from white pine and hardboard for years of service. 23" x 23" x 24". Removable walls and floors for easy cleaning. Parts accurately pre-cut; holes drilled; screws incl. Only screw driver needed to assemble. Complete instructions; child can do professional job. Remit $24.50 with order (no COD's) to Wm. L. Fabian & Assoc., Rte 5, Box 334, Burlington, Wisc. Satisf. Guar. Pole not incl. Shipping charges collect.

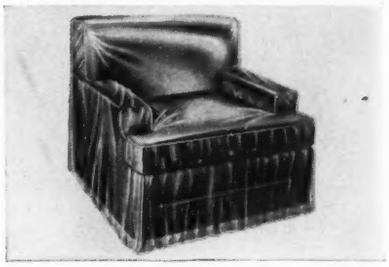
Grow Dwarf Ming Trees

This is the best time of year to start this fascinating hobby. Illus. booklet, complete instructions and growing kit, everything you need. Kit contains booklet "Raising Dwarf Trees for Pleasure and Profit", dwarf pots, soil mixture, 3 packets tree seeds, water cloth, tree seal, plant food and drain materials. All for only $2.65 ppd. Don Pedro Farms, FG-3, Rte. 2, Box 1007, Stockton, Calif. Free Catalog.

shop in Flower Grower's **GENERAL**

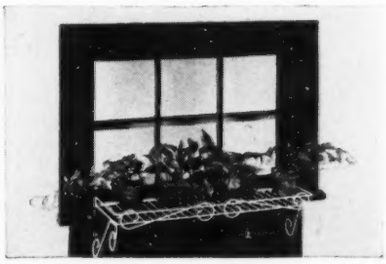
PLASTIC FURNITURE COVERS

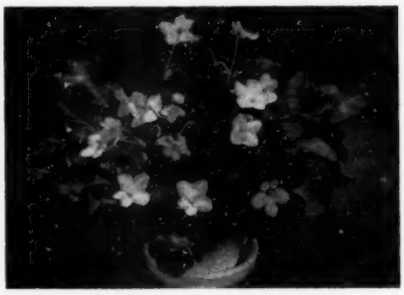
New, shaped-to-fit covers come in over 150 styles and sizes. Smartly tailored of heavy Firestone Velon to keep your lovely furniture spotlessly clean. No more worries from spills, dust, soot, pets or children. A swish of a damp cloth removes all marks. Chair sizes as low as $3.95. Write to House of Schiller, FG-3, Dept. 61, 180 N. Wacker Drive, Chicago 6, Ill. for a catalog and sample of plastic.



WINDOW FLOWER SHELF . . .

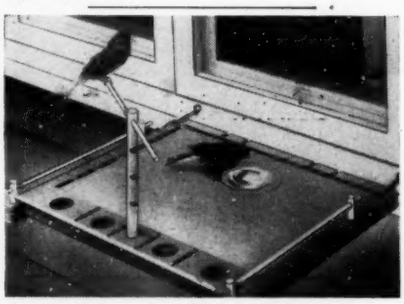
Give your house plants more room by placing some of them on this attractive window shelf. Built to fit any standard wood frame window 25" or more in length. A narrow flange fits over the sill and the legs of the shelf adjust and act as sturdy braces. Permits normal window operation. It will accommodate four to five plants. Lasting white enamel finish. Screws provided for outside use. $2.39 each postpaid, 3 for $6.00. Geri Distributors, FG-3, 505 North Ervay St., Dallas, Texas.





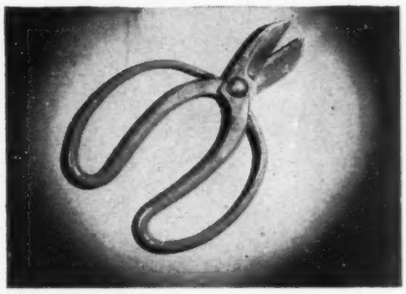
New African Violet Food

Are your African Violets growing successfully? They will if you use this new liquid food developed specifically by a floriculturist for African violets. It is 100% soluble and because it is a liquid to begin with it leaves no undissolved particles. Get more growth—more bloom—more strength for just a penny a feeding. Enough food for 100 feedings. $1.00 postpaid. Cherry Hill Gardens, Lyons, N. Y.



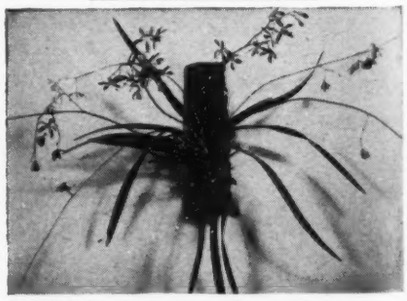
Something to Chirp About!

A brand new idea for a fascinating new hobby! Watch, study, enjoy wild bird life right from your own window! Attach feeding station to any window sill without tools. Four seed wells, removable feeding stick, drinking cup and perch rails encourage daily visits from birds. Sturdy, weatherproof. Green enamel finish, white trim. Satis. Guar. $4.95 ppd. Duncraft, Dept 3F, 2 So. Main St., Penacook, N. H. Pat. Pend.



Flower Shears

These steel shears with fireman-red handles come from Japan—the home of artistic flower arranging. The unusual shaped handle and short precision ground blades with keen cutting edge were specifically designed to let you snip rose buds or thick branches. Just the thing for every gardener and flower arranger on your gift list. $3.75 postpaid. The Shadow Box, 1378 East 8th St., Brooklyn 30, N. Y.



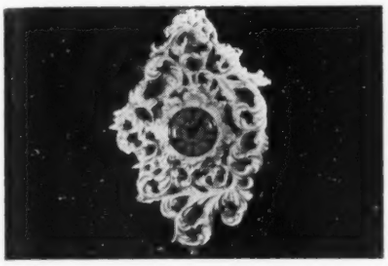
Orchids Anyone Can Grow

You can easily grow exquisite "Butterfly Orchids" anywhere indoors. From Spring through Summer they'll bear as many as 200 exotically fragrant miniature white orchids with purple throats. Crown of 10 or more bulbs is mounted on highly decorative oak slab, ready to hang or set anywhere. Fun to grow, a delight to own. Simple instructions provided. $2.00 ppd. Max Schling Seedsmen, Madison Ave. near 59 St., N. Y. 22, N. Y.

STORE *with Erna W. Cass*

FERMEX FOR SEPTIC TANKS . . .

This new discovery which prevents clogging of septic tanks, consists of an active ingredient that has been combined with a special fermentation process. It continuously reduces organic waste material to a liquid, providing all-year-round trouble-free septic tank operation. A single, safe application per year eliminates the need for pumping out the tank. $7.95 quart, postpaid. The Fermex Company, FG-3, 11 Hill St., Newark 2, N. J.

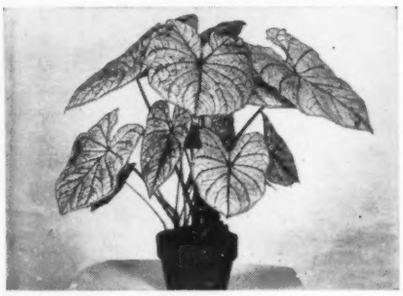


DECORATOR'S CLOCK . . .

An original creation is this fine sculptured clock. A work of art that will enhance the beauty of any home. Handmade of durable hydrocal. Fine electrical movement. Available in the following finishes to complement your particular decor: Antique gold, Antique white, Gold Fruitwood, French Gold, Black and Gold, White, Black, and Pickled Pine. Clock is 22" high and 14" wide. $29.75 postpaid including Federal Tax. House of Bronze, FG-3, Carmel 18, Ind.

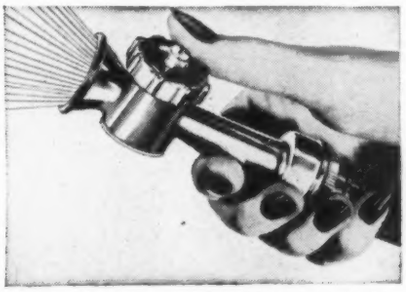
For "Attraction in Action"

Complete your wardrobe with the "Playotte". This action-built skirt is as attractive when gardening as it is when golfing, bowling, riding or hiking. Tailored with button girdle front over a trim concealed zipper. Fine Rayon Gabardine in navy, black, gray, brown, green and wine. Waist sizes: 22-32, $5.95; 34-40, $7.95, plus 15¢ postage. Sheldon Specialty Company, Dept. A., 545 Fifth Ave., New York 17, N. Y.



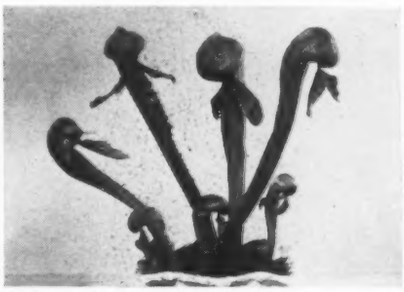
Hybrid Caladiums

Choose from more than 70 different varieties of this colorful tropical plant. Perfect for indoor cultivation. Every bulb labeled as to variety. Prices include delivery. No. 1 size bulbs 6 for $2.85; 12 for $5.60; 24 for $11.00; 50 for $21.00; or 70 for $28.00. Complete list of varieties mailed you upon request. Joyner's, Caladium Specialists, 5102-A Seminole Ave., Tampa 3, Florida.



Powerful Jet To Softest Rain

A perfectly wonderful hose nozzle to add to any gardener's pleasure. Elkay Valve Hose Nozzle is light and strong and rust-resistant. From seedling dewdrops to jet power. Will reach roof of a two-story house. Positive shutoff. $1.50 postpaid. No COD's, please. Guaranteed to please. (Send 25¢ for Gardening Hints booklet). Albin of California, Rm 63, 1401-33 West 8th St., Los Angeles 17, California.



Cobra Lily

From the age of the Dinasaur, from the land of the Oregon Cavemen, comes this beautiful insect eater. Native of the mountain swamps of the high Siskiyous. This unusual plant, Darlingtonia Californica, is dangerous only to insects. $5.00 each postpaid, 3 for $12.50. Moss from natural bogs for best culture 50¢ per plant. Growing instructions with each plant. No COD's. Cobra Sales Co., P. O. Box 1A, Grants Pass, Oregon.

Herbs Are Fun To Grow

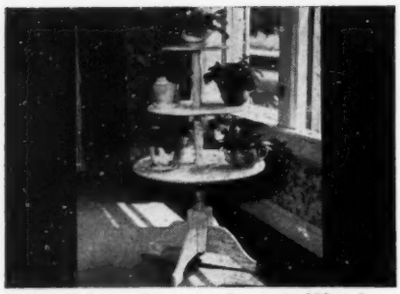
No garden is complete without herbs. These fascinating plants are easy to grow, need little care and thrive in most any soil. We ship thousands of state inspected plants all over U. S. including culinary, scented and decorative. Send 10¢ for two attractive pamphlets. One lists plants plus growing information; other is Cookery Guide with Herbs and Spices. Also lists other products. The Potters, Herbs, Baraboo, Wis.

Plant Hardy California Roses

We are holding fresh and dormant in storage 400 rose varieties, old and modern for March through May planting in colder sections, unconditionally guaranteed. Our handsomely printed brochure "ROSES OF YESTERDAY AND TODAY" offers the largest and finest selection of roses in America. Send for your copy, *35¢ coin or stamps, please deduct when ordering.* Will Tillotson, Brown Valley, Watsonville, California.

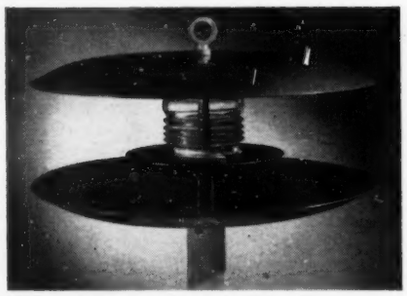
Waldor Seed Drill

Especially designed to help gardeners sow those small seeds so difficult to handle, such as lettuce, carrots, beets, radishes, etc. With the Waldor Seed Drill seeds go farther and are easier to sow! Just roll it down the row! An easy twist of the lid adjusts the flow of seed for proper spacing. Well made for long life. Only $3.95 postpaid. No COD's please. Waldor Greenhouses, Box188F, Salem, Mass.



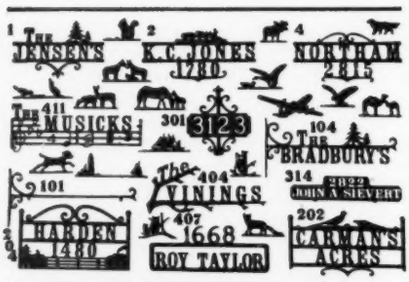
Revolving Susan Saves Work

Revolving tiers of *new* Violet Suzan permit easier plant care. Frequent *rotation* in window light assures straight, vigorous growth, better blooms on indoor plants. Tiers, 12", 18", 24" dia.; 19½" from floor to lowest tier; 10" between tiers; 17 lbs.; warp-proof wood, sanded ready to finish $13.95 exp. collect; finished natural color only $17.95. Satis. guar. Schroeder's, Dept. FG3, 510 Market St., Chattanooga, Tenn.



Kepe-Nete Bird Feeder

Here's a new bird feeder you can actually keep clean. Feed stays absolutely dry regardless of weather. No messy lawns, birds can't scatter or get feed dirty. Upper and lower trays 15½" wide, in baked Palm Green enamel, other parts aluminum and chromium. Feeder tray 7¼" wide. Holds 1½ pounds of feed. Easy to clean. Patent applied for. Only $9.95 ppd. H. B. Cowap, Dept. F-3, 2423 Ridgeway Ave., Evanston, Ill.



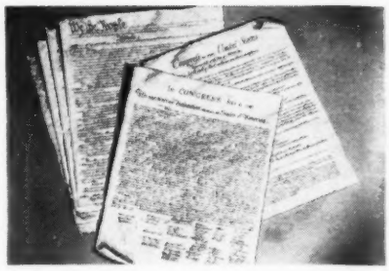
Cast Aluminum Markers

Can you think of a more personal and lasting gift than a cast aluminum name to decorate the home? Signs come in a variety of styles: Wall, hanging, post and lawn signs. Letters shown are 2½" high. Average length of signs about 20". Nearly 90 ornaments to choose from; all interchangeable. Send for free catalog of signs, weathervanes and mail boxes. Scenic Miniature Co., 3123 Alderwood Ave., Bellingham, Wash.

***shop in Flower Grower's* GENERAL**

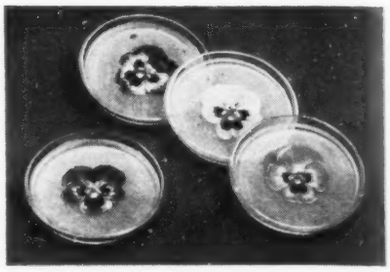
HISTORICAL DOCUMENTS . . .

Replicas of America's three most famous documents every good American will cherish: Declaration of Independence, Bill of Rights, Constitution, complete with famous signatures. So authentic you can hardly tell them from the originals in the Library of Congress. Aged by a special process, the genuine parchment paper looks and feels over 175 years old! Each document is approximately 13" x 15½". $1.00 for entire set of 3, postpaid. Jeff Elliot, FG-3, Station C, Flushing 67, N. Y.



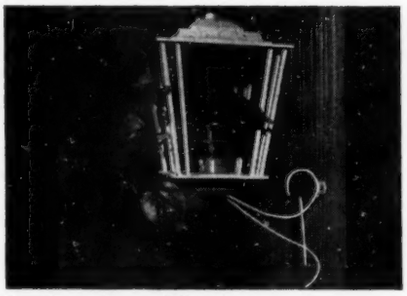
REAL PANSY COASTERS . . .

Each of these beautiful coasters with real pansies in all their natural color embedded in the center is entirely handmade of durable plastic that will last a lifetime. Because they are handmade and because the process requires considerable time you can be assured of quality merchandise. Set of 4 coasters, $5.50 postpaid. The Shadow Box, FG-3, 1378 East 8th St., Brooklyn 30, N. Y.



PLANT STAND . . .

New, decorative, wrought iron plant stand holds 9 plants. The nine arms which hold the pot sockets are of different sizes and slip on and off the bars of the stand to permit a variety of floral arrangements. Stand is sturdily constructed, yet light enough to move from place to place for best sun exposure. 48" tall and 24" wide with a Pompeian green finish. $15.00 express collect. Ward Phillips Co., FG-3, Dundee 1, Ill.



Ivy Lantern Planter

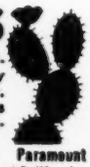
Immediate delivery! Gaily colored Ivy Lanterns add distinction to any room, sun porch or patio. Charming with period or modern decor. Wood and metal construction. Lantern is 9-¾" high by 7-¼" wide and deep. Lacquered red, white or chartreuse. $4.95 each, postpaid. Pair $9.00. Price does not include plant or container. Send check or money order to Todd Displays, 158 Phelps St., Oneida, N. Y.

Tube Craft Floracart

Start seedlings and cuttings, for outdoor planting later, under fluorescent lights in this attractive portable plant stand. Three water-proof trays. Also ideal for indoor house plants such as African Violets, Begonias, Gloxinias, etc. Price of FloraCart $52.50 fob Cleveland. Fluorescent fixtures (less tubes) $11.50 each. Write for descriptive literature. Tube Craft, Inc., Dept. D, 1950 W. 114 St., Cleveland 2, Ohio.

New CACTUS

Grow these exotic and beautiful flowering plants. Write for my lavishly illustrated cactus catalog in full color. 10c appreciated for postage. Hundreds pictured and described. Simple cultural directions. Grow anywhere. Largest collection in the world



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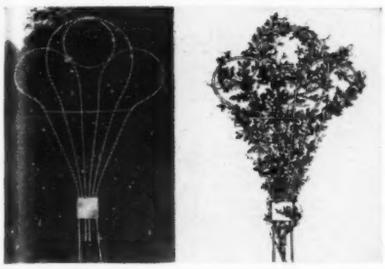


"ROSE QUEEN" TRELLIS . . .

Beautify your rose garden this summer with this new aluminum trellis. It is 6 feet tall and 4 feet wide. Entirely handmade of highly polished aluminum, guaranteed to be rust-proof. It features six sturdy legs that rest firmly on the ground giving effective support for your rosebush or vine against the hazards of wind and rain the year 'round. $12.95 postpaid. Old Copper Mine Farms, Inc., FG-3, RD 2, Box 198, Plainfield, New Jersey.

TALL TALE'RS . . .

Add a sporting touch to your game room decor with man-sized, heavy bottom 12 ounce tumblers. Each in the set of six, has a different sport scene. Can't scratch or chip because scene is fired on the outside of the glass —permanent as the glass itself. Scenes: Hunting, polo, fishing, canoeing, golfing and riding. Clear glass, $7.95 for the set; frosted $8.95 postpaid. The R. J. Skubic Co., FG-3, 121 Fontana Ave., Fontana, Calif.

FABRICOLOR PAINT SET . . .

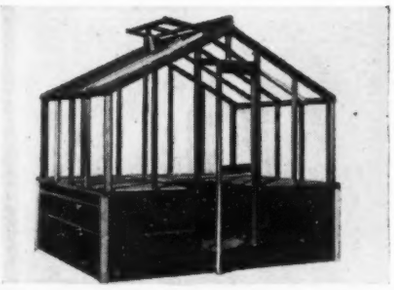
Create hand painted fabrics at a fraction of their usual cost. Make place mats, chair covers, curtains, linens and dress materials of cotton, linen, acetate, silk and other fabrics. Colors mixed with water, penetrate the fabric; do not run, are sunfast and washable. Set includes 6 colors, including black and white, stencil cutting knife, brush, exclusive stencil idea for producing over 150 designs, and stencil paper for own designs. $3.00 postpaid. Artone Color Corp., FG-3, 21 West 3rd St., New York.

Gorgeous Navajo Colorgraphs

Share with artist *Gerard Curtis Delano* his pleasure in capturing vivid close-ups of the intimate life of the colorful Navajo. Signed, full-color print, faithfully reproduced from his famous painting "Navajo Boy" (above), in fine quality decorated mat, framing size 23" x 19". $5.00 ea. ppd. Send for folder listing other beautiful Navajo subjects. Delano Studios, Suite 6, 31 E. 18th Ave., Denver 2, Colo.

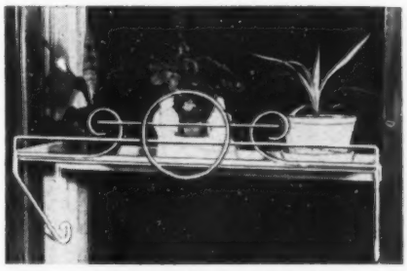
New Closet Valet

Multiply your closet space! Keep hats and purses in perfect shape and easy to find in this wonderful new Closet Valet. Clever pigeon-hole effect is actually series of sturdy boxes, smartly finished in tan linen-weave with edges in contrasting color. Each box 13" x 6" x 10"—average shelf holds three sets. You'll want several! Satisf. Guar. Set of 3 only $1.79 ppd. Downs & Co., Dept. 3937, Evanston, Ill.



Redwood Greenhouse—$149.50

We've packed more value into this $149.50 8' x 6' greenhouse than you will find anywhere. Crate arrives f.o.b. Los Angeles with 4 walls, roof assembled, glass, hardware, glazing gun, vents, and benches. Add $8.00 East of Mississippi. FHA terms on all our models. Free: "Greenhouses for Everyone". Southern California Greenhouse Mfgs., Dept. G2, 3266 N. Rosemead Blvd., Rosemead, Calif.



New African Violet Shelf

Add beauty and extra space to your indoor window garden with this attractive aluminum window shelf. Attaches without screws either to window sill or upper sash. Does not interfere with operation of window. One piece self-watering tray, ¾" deep provides water for days. White enamel finish. $2.75 ea. ppd., 2 for $3.75 *only* when accompanied by name and address of another flower grower. HomeNyard Products, Addison, Ill.

Unique Imported Planter

From Mexico comes this graceful hand-made planter with natural clay pot. The beautiful rustic copper finish of the ornate scroll work will brighten any room. You'll want one for yourself, too. Medium size with 4" pot, 14" overall, $2.00 postpaid. Large size with 6" pot, 18" overall, $3.00. No COD's please. Money refunded if not delighted. Eckhard Imports, Dept #-9, 3619 Shelby, Forth Worth 9, Texas.

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The sprayer to take care of all home gardening jobs. Spray flowers, shrubs, small trees. Adjustable nozzle—vary spray from fog-mist to full stream. Brass and neoprene, complete with carrying strap and cap to fit any Mason jar. Use any soluble spray solution; no waste, save unused portion in jar. If unavailable at dealer, send $4.75 ppd. (Denver & west, $4.95). Guaranteed.

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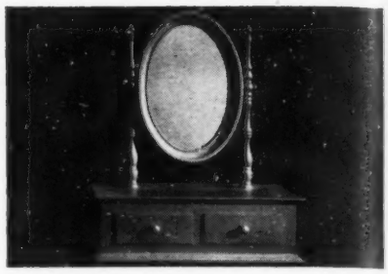
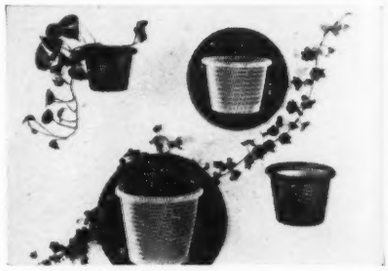
THE DRESSERETTE . . .

This finely crafted 18th Century reproduction is a perfect addition for the dressing table or powder room. Overall size is 24" high, 17¾" wide and 6½" deep. Complete with 9½" x 13½" oval mirror and two handy drawers. Handsomely finished in antique gold, $16.95 express collect. Unfinished, ready for painting to match your color scheme. $14.95. Flair-Craft, Inc., FG-3, 5844 N. Keating Ave., Chicago 30, Ill.



FLOWERPOT CONTAINERS . . .

Expanded metal fashions these unique flowerpot containers. In black and white only, they have a baked-on enamel finish and come with built-in saucer. Suitable for either modern or traditional decor. Available in three sizes: 4½" in diameter x 4½" high, $2.50 postpaid; 6" x 5½", $2.95; 8" x 7½", $3.95 postpaid. Hazel Ashman, Your Personal Shopper, FG-3, 330 East 79th St., New York 21, N. Y.



HAND SNO-DOZER . . .

Let it snow! Now you can remove deep snow quickly without strain or over-exertion with the new Hand-Sno Dozer. Made of cold rolled steel, it is 16" wide x 18" high, with a 48" handle and 1½" runners attached to top and bottom of blades by which it is controlled to slide over obstacles, such as rocks, boards, etc. Has many other uses—as a fast and handy grading tool, pushing leaves and soil, etc. $3.95 exp. collect. Lasker Sno-Dozer Co., FG-3, 3710 Warwick Blvd., Kansas City, Mo.

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18" high across entire back-
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Use the new, modern, all automatic Weather-King now! Start your Pansy, Delphinium, Sweet William and English Daisy seeds. Start your cuttings – Azaleas, Yews and all Evergreens. Use it as a storage for your rare perennials! Get the jump on Spring with early, healthy seedlings!

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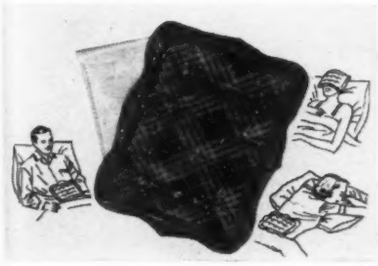
Designed without handles for easy passing from hand to hand without the customary switching. Their gently curving necks are just the right size to hold while pouring. Pottery thickness retains heat and cold. Make attractive flower vases! All white exterior and interior, or, black exterior with white interior. Quart size, 7" high, $5.95 postpaid; pint, 5", $4.50; ½ pint, 3½", $2.95. Set of 3, one of each size, $10.95. Design Exclusives, FG-3, RFD #1, Sandy Hook, Conn.



FRO-GLOW . . .

A soft-quilted plastic, light-weight and durable hot-or-cold pack. Takes the place of cumbersome, leaky hot water bottles and hard, non-conforming ice bags. Excellent traveling companion! Filled with a harmless and stainless fluid, electronically sealed, it is easily and quickly heated or chilled by placing in hot or cold water for a few minutes. It form-fits any part of the body. $2.00 postpaid. H. Gloeckler Associates, Inc., FG-3, 155 East 44 St., New York 17, N. Y.

FLORA CART . . .

The indoor plant collector of African Violets, begonias, or other house plants, will want this attractive, well constructed, portable plant stand. Three waterproof trays accommodate more than 200 3" pots. Ball bearing rubber-tired swivel castors for easy wheeling. Overall size 52" long x 19" wide x 52" high. $52.50 f.o.b. Cleveland. Fluorescent fixtures $11.50 each less tubes. Tube Craft, Inc., FG-3, 1950 W. 114 St., Cleveland 2, Ohio.

Arrangement by Mary Hoge Clemmer

The perfect complement to lovely flowers—a Leaf Cash Po. This is one of several authentic reproductions of old stove tops by Virginia Metalcrafters, Wayne Road, Waynesboro, Virginia. Available at better stores and shops for $7.50. Write for Free folder and name of dealer nearest you.

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SCARLET BUGLER (Firecracker pentstemon) Many scarlet, trumpet-shaped flowers on tall stems. Flowers over a long period. Excellent cut flower. **8 strong plants $1.00**

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BEAUTIFUL ENTRANCE SIGN

Size 15" x 15". With your name and number on both sides in reflecting globead paint. Cast in aluminum from hand carved models in lustrous Swedish iron finish in full relief. Weatherproof. Have that fine hand-hammered rustic appearance. Adds distinction to your home. Regular price $11.50.

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Attract many varieties of colorful birds with this new and novel bird feeder! The roof slides up for easy filling of the large capacity feed holder with suet or bread. The strongly built feeder has a ring for hanging. Treated wooden base and perches can't rot. It is 15½" high, 11" in diameter. $4.95 postpaid. Parmele & Sturges, FG-3, 51 Crown St., New Haven, Conn.

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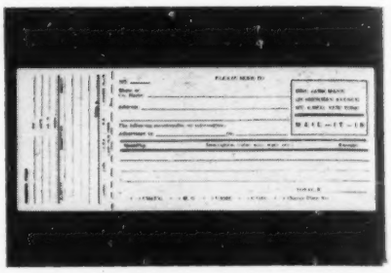
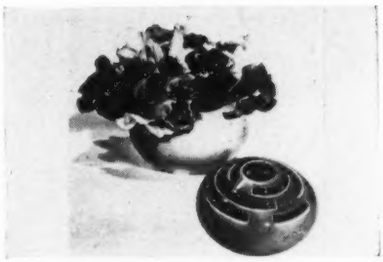
Mail-order buyers will find these personalized printed order blanks with name and address printed on each form, most helpful. No more letters to write—just fill in all the necessary information on the blank and mail it. Facilitates quicker filling of your order. 50 forms with name and address printed on each and on cover, $1.00, postpaid. 100 DeLuxe forms. with name and address printed in gold on morocco-like cover, $2.00. Jack Mark, FG-3, 79-09 147 St., Flushing 67, N. Y.



PANSY POT . . .

Flower arrangers know how difficult it is to arrange pansies and other short stemmed flowers. This self-arranging, richly glazed pottery bowl with strategic slotting around the top, eliminates the need for flower holder. Slots hold stems and leaves securely, distributing the blossoms into attractive groupings. Bowl is 2¾" high, 3½" in diameter and comes in brown or gray-green. $2.00 postpaid. Carmel Work Center, FG-3, P. O. Box T-1, Carmel-by-the-Sea, Calif.



Colorful Ceramic Egg Cups

Youngsters will find it fun and a pleasure eating their eggs out of one of these delightful ceramic egg cups in the shape of a colorful chicken, bunny or duck. Planted with a single small plant, or just as they are, they make interesting and attractive decorations for the children's room. $1.75 each postpaid, 3 for $5.00. No COD's please. Mon-Aire Ceramics, FG-3, P. O. Box 1122, York, Pa.

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AMAZING INVENTION. Banishes old-style housecleaning mess and muss. No rags—no sticky "dough"—no red, swollen hands. No more dangerous stepladders. Literally erases dirt like magic from Wallpaper, Painted Walls, Ceilings, Window Shades. *Take orders from friends! Earn money!* Act now!

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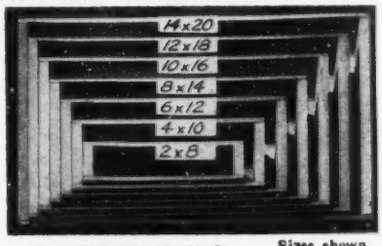

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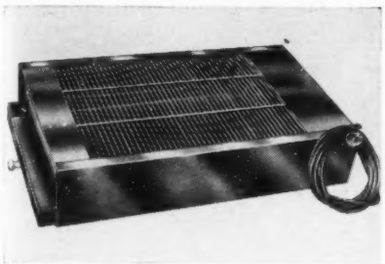
Here's new hope for thousands of folks who have tried to break the tobacco habit without success. No matter what you've tried before, don't despair. A well-known Chicago doctor d. d. s. stopped smoking himself in 7 days with a formula of his own making—now available in Stopbaco Lozenges. You, a loved one or a friend can quit or lessen the tobacco habit just like the doctor did . . . in 7 days this easy way. AND YOU DON'T RISK A PENNY! Stopbaco Lozenges must give you results in 7 days or they cost you nothing. SEND NO MONEY! Just mail name, address. Pay postman $2.00 plus C.O.D. postage on delivery. Or send $2.00 and we pay postage. Take Stopbaco Lozenges like candy. The desire for tobacco must be gone or abated within 7 days—or return empty package for immediate refund. Order now by writing direct to Dr. M.E.D. . . E-Z INDUSTRIES, Dept. 70, 1226 N. Western Ave., Chicago 22, Illinois

STORE *with Erna W. Cass*



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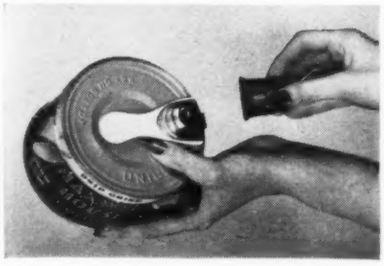

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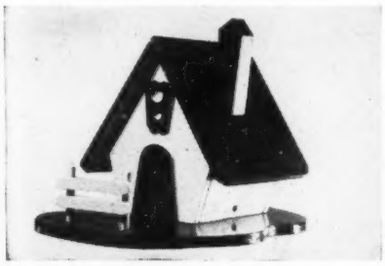

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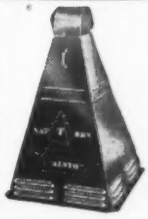

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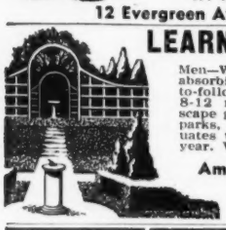
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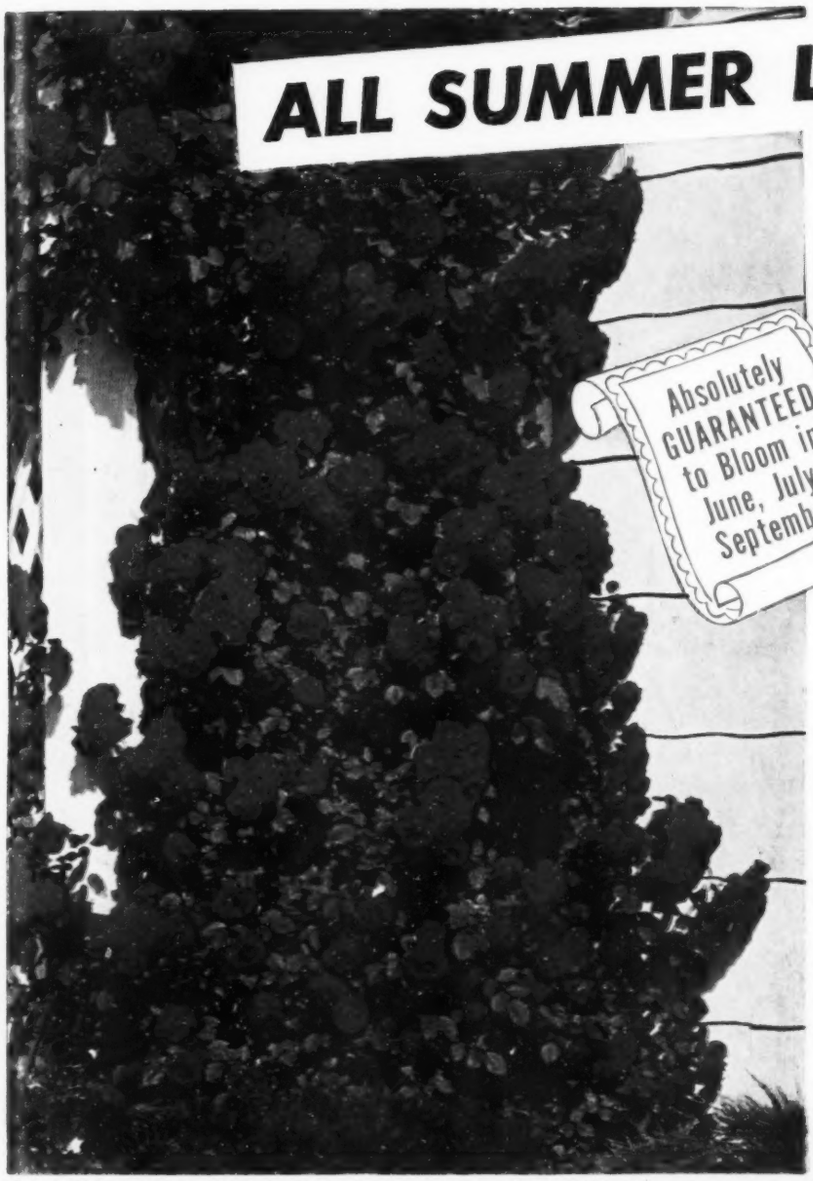

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